

② Genetics Since Mendel

What You'll Learn:

Explain how traits are inherited by incomplete dominance.

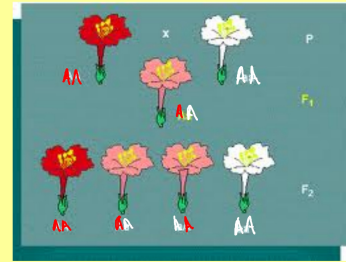
Compare multiple alleles and polygenic inheritance, and give examples of each.

Describe two human genetic disorders and how they are inherited.

Explain how sex linked traits are passed to offspring.

Incomplete Dominance

*Intermediate phenotype is displayed.



Multiple Alleles

*A trait that is controlled by more than 2 alleles.



*This produces more than 3 phenotypes.

Polygenic Inheritance

*Gene pairs work together to produce a trait.



*This produces a wide variety of phenotypes.

Impact of the Environment

*Environment plays a role in how genes are expressed.

*Environmental influences can be internal or external.



Chromosome Disorder

*Mistakes in meiosis can result in too many or too few chromosomes. This is usually fatal.

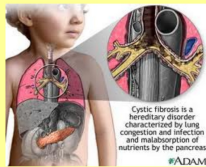
*Down's syndrome is a chromosome disorder where the individual has 3 number 21 chromosomes. Affects are short stature, learning disabilities, and heart problems.



Recessive Genetic Disorder

*Both parents have recessive allele and pass it on to the offspring. Neither parent would show symptoms (heterozygous).

*Cystic fibrosis is thick mucus in the lungs instead of a thin watery fluid. It causes respiratory infections and makes it hard to breathe.



Cystic fibrosis is a hereditary disorder characterized by lung congestion and infection and malabsorption of nutrients by the pancreas.

#ADAM

Sex Determination

*Each egg normally contains 1 X chromosome and each sperm normally contains an X or Y.



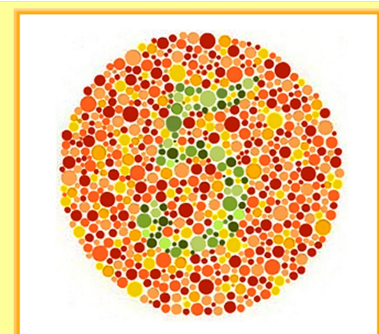
XX = female
XY = male

Sex-Linked Disorders

*Color blindness is a recessive allele on the X chromosome.

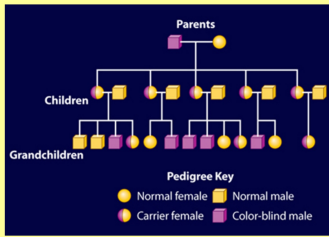
*Males only have 1 X, if they get the allele for color blindness they will be color blind.

*Females have XX, so they need both alleles for color blindness to be color blind.



Pedigrees Trace Traits

*Pedigree is a visual tool for tracing traits



Using Pedigrees

*Geneticists use it to predict when alleles will appear.

