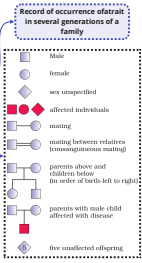


S.No.	Characters	Contrasting Traits
1.	Stem height	Tall/dwarf
2.	Flower colour	Violet/white
3.	Flower position	Axial/terminal
4.	Pod shape	Inflated/constricted
5.	Pod colour	Green/yellow
6.	Seed shape	Round/wrinkled
7.	Seed colour	Yellow/green

- Autosomal dominant: E.g. Muscular dystrophy.
- Autosomal recessive: E.g. Sickle cell anaemia, Albinism
- Sex linked: E.g. Haemophilia

- Example, Down's syndrome (trisomy of 21).
- Klinefelter's Syndrome (XXY in male).
- Turner's syndrome (XO in female).



Studied 7 Pairs of contrasting characters of pea plant

Proposed three laws

Law of Dominance

In heterozygous condition only one member of a pair expresses its effect in the hybrid and is called as dominant while the manifestation of the other is masked and is known as recessive

Law of Segregation

Law of Independent assortment

Gregor Mendel

During gamete formation, the factors (alleles) of a character pair present in parents segregate from each other such that a gamete receives only one of the two factors.

When two pairs of traits are combined in a hybrid, segregation of one pair of characteristics is independent of the other pair of characters.

Mendelian Disorders

Chromosomal Disorders

Genetic Disorder

Definition

Symbol used

Importance

Pedigree study is utilized to trace the inheritance of a specific trait, abnormality or disease

Pedigree Analysis

Sudden heritable change in DNA sequence, which results in changes in the genotype and the phenotype of an organism. Leads to variation in DNA

Definition

Mutation

- Frameshift Mutation
- Point Mutation

Principles of Inheritance and Variation

Non-Mendelian Inheritance

Sex Determination

Chromosomal Theory of inheritance

-ZW mechanism Example, Birds
-XX-XO mechanism Example, grasshopper
-XX-XY mechanism Example, Human being

Proposed by Walter Sutton and Theodore Boveri in 1902.
 Thomas Hunt Morgan formulated chromosomal theory of inheritance using fruit flies (Drosophila melanogaster).
 Morgan coined the term Linkage.

Incomplete Dominance

Co-Dominance

Pleiotropy

Multiple Alleles

Incomplete Dominance

A gene exists in more than two allelic forms E.g. AB, O blood grouping

Two alleles of a gene are equally dominant and express themselves even when they are together.
 E.g. ABO blood grouping in human

One of the two alleles of a gene is incompletely sp dominant over the other allele. E.g. Flower colour in Antirrhinum sp. and Mirabilis jalapa.

Ability of a gene to have multiple phenotypic effects as it influences a number of characters simultaneously

