Contents

Person coining the term genetics

W. Bateson 1905 Coined

Year of coining of genetics by W Bateson

Person coining the word gene

Johanssen 1909 gene

Year of coining of gene by Johanssen

Father of genetics

G.J Mendel father Genetics

Father of experimental generics

T. Morgan Father of experimental genetics

Heredity

The transmission of characters from one generation to another (parents to offspring) is known as heredity.

Hereditary characters

Such transmitted characters are called as hereditary characters.

Genes

Genes are the unit of heredity.

Variation

Variation: The degree of differences existing between parents and offspring as well as among the individual offspring is called as variation.

Genetics

Genetics: The branch of biological science that deals with the study of mechanism of heredity and variation is known as genetics.

Meaning of genetics in greek

In Greek genetics means-to grow into and to generate.

Term for environmental variation

Somatic or environmental variation: This type of variation occurs on somatic or vegetative cell. It is mainly induced by environmental factors.

Location of environmental variation

Cause of environmental variation

Location of germinal variation

Term for germinal variation

Germinal variation: The variation which occurs on germinal cells or reproductive cells and can be transmitted from one generation to another generation is called as germinal variation or blastogenic variation

Consequence of germinal variation

Gene

Smallest segment of DNA that specifies the particular character of an organism. Coined by Johanssen 1909 Different difinitions of gene may be

Cistron:

Functional unit of gene that specifies for one polypeptide (protein).

Scope of cistorn

Recon:

Smallest part of DNA capable of undergoing recombination.

A recon may be as one nucleotide pair

Muton:

Smallest unit of gene that undergoes Mutation.

Derivative of gene

Derivative of cistron

Derivative of recon

A gene consists of several cistrons, a cistron consists of several recons and a recon consists of several mutons.

Characters in genetics

Characters: Measureable morphological or physiological features of the organisms:

Examples of characters

Height, colour etcs

Traits in genetics

Traits: The contrasting features of the same character is called traits eg tallness and dwarfness

Examples of traits in genetics

Gene locus in genetics

Gene locus: Specific region of homologous chromosomes where genes are located.

Homologous chromosomes in genetics

Homologous chromosomes: A pair of chromosomes having two different origin

Origins in homologous chromosomes in genetics

i.e. one paternal and another maternal.

Genotype in genetics

Genotype: The genetic constituent of an organism is called genotype.

Gene pool in genetics

Gene pool: Total variety of genes and their alleles

Locational scope of gene pool in genetics

present in a sexually reproducing population is called gene pool.

Allele in genetics

Allele: Alternative forms of a gene (two Mendelian factors)

Locational scope of allele in genetics

which is present in same locus of homologous chromosomes.

Dominant allele in genetics

Dominant allele: The allele which can express itself either on homozygous or heterozygous condition.

Examples of dominant allele in tall condition in genetics

TT or Tt.

Examples of recessive allele in tall condition in genetics

Recessive allele: The allele which can express itself only in homozygous recessive condition.

Recessive allele in genetics

Eg. Tt

Homozygous in genetics

Homozygous: An individual having similar types of allele

Scope of definition of homozygous in genetics

in an identical gene locus of homologous chromosomes.

Examples of homozygous condition in tall condition in genetics

Eg. TT or tt

Heterozygous in genetics

Heterozygous: An individual having dissimilar types of allele

Scope of definition of heterozygous in genetics

in an identical gene locus of homologous chromosomes. Eg. Tt

Examples of homozygous condition in tall condition of genetics

Punnet square in genetics

Punnett square: It is a checker board which

Function of punnet square in genetics

helps to visualize all the possible combinations of male and female gametes.

Location of male gametes in punnet square across a plane

Male gametes are placed horizontally and female are placed vertically.

Location of female gametes in punnet square across a plane

Hybrids in genetics

Hybrids: Individuals resulted after crossing genetically different individuals.

Hybridization in genetics

The process is called hybridization

Clones

Clones: A groups of genetically identical individuals derived from asexual reproduction.

Type of reproduction yielding clones