

TERM.....SECOND

SUBJECT...BIOLOGY E-NOTE FOR SECOND  
TERM

SCHEME OF WORKS SS3

WEEK ONE...HEREDITY(GENETICS)

WEEK TWO/.....THE CHROMOSOME

WEEK THREE...../VARIATION AND EVOLUTION

WEEK FOUR.....ADAPTATIONS

WEEK FIVE.....DIFFERENT CASTES OF TERMITES AND THEIR ROLES

WEEK SIX.....THEORY OF EVOLUTION

### **WEEK 1**

*Genetics is the study of heredity and variation in living things*

*HEREDITY OR INHERITANCE is defined as the transmission and expression of characteristics or traits*

*in an organism from parents to offspring.*

*VARIATION is defined as the differences which exist between parents and offspring as well as among the offsprings.*

#### **CHARACTERS OR TRAIT THAT CAN BE TRANSMITTED IN MAN**

*It is only those traits that constitute the genetic makeup of the parents that can be transmitted and expressed in the offspring.*

*These traits include colour of the skin, colour of eyes, colour of the hairs and hair texture, size of body stature, shape of the head, shape of the ears, shape of the mouth, lips, shape of the nose, length of the hands and legs, length of neck, Blood grouping, baldness, tongue rolling, hemophilia, voice, intelligence, composure, aptitude, sickle cell anaemia are transmissible in animals while transmissible include colour and shape of the leaves, shoot, seed size and shape, colour of the flowers, size of the fruit and pigmentation*

#### **HOW CHARACTERS OR TRAITS GET TRANSMITTED FROM GENERATION TO GENERATION**

*Only characters controlled by genes can be transmitted. A diploid organism has two sets of chromosomes referred to as homologues. Such an organism has two copies of each gene, with each copy occupying identical locations or loci on the homologous chromosomes.*

Diploid organisms produce gametes by meiosis in their reproductive organs. A male individual produces egg cells or ova. During meiosis the number of chromosome in a cell is halved, the gametes are therefore haploid containing one set of chromosome and gene only one copy of each gene.

During sexual reproduction, the gamete of a male and female individual fuse to form zygote. Each zygote is diploid as it gets one set of chromosomes, and hence one copy of each gene from the gametes of each parent. The gene an organism inherits during fertilization is called genotype remain constant throughout life span. The phenotype which is the physical appearance or features of an organism is determined by its genotypes and the environment in which it lives.

### Basic Genetic concepts

**GENE;** This is defined as the physical unit of inheritance transmitted from due generation another and responsible for controlling the development of characters in the new organisms.

**CHROMOSOMES:** these are strands of genetic materials which are obvious during cell division. They are found in the nucleus where they carry the genes. They contain of DNA (deoxyribonucleic acid) and protein.

**CHARACTER OR TRAIT;** These are inheritable attributes or features possessed by an organism's height or size.

**ALLELOMORPHS** these are pairs of genes or locus that controls contrasting character. Pair of allomorphs are called allelic pair while each member of the pair is the allele of the other.

**PHENOTYPE:** Is the sum total of all observable features of an organism s that is the physical, physiological and behavioral traits e.g. height, weight, skin colour.

**GENOTYPE;** The term in used to describe those traits or sum total of the genes inherited from both parent or in order word, it is the genetic makeup or constitution of an individual. Genotype includes both the dominant and the recessive traits that form the genetic makeup of an individual.

**DOMINANT** charater; This is a trait that is expressed in an offspring when two individual with contrasting characters are crossed.

**RECESSIVE:** Character this is the trait from one parent which is masked or does not produce its effect in the presence of dominant gene or character. Shortnees is recessive character while fellness is dominant character. Recessive genes are gene which control recessive character,

**HOMOZYGOUS:** Is an individual with identical alleles in respect of a particular trait or character (TT or tt).

**HETEROZYGOUS:** An individual having two member of a pair of genes controlling a pair of contrasting alleles located on different on the same position on a pair of chromosome e.g. (Tt for tallness or a plant with Rr.

**GAMETE** - Is a single cell formed as a result of the union of a ale gamete with a female gamete

**FILIAL** -Generation - the offspring of parent make up the filial generation the first, second and third generations of offspring are known as first, second and third filial generations of offspring are known as first, second and third filial generation are denoted by the symbols F1, F2 and F3.

***HYBRID:*** *Is an offspring from a cross between parents that are generically different parents that are generically different but of the same species.*

***HYBRIDIZATION*** - *is the crossing...*