

Heredity Notes

A. History of Heredity Studies

- 1) Gregor Mendel is considered the father of genetics.
- 2) He performed experiments on pea plants to find out why living things possessed different traits.

- 3) Some traits of pea plants that he observed are as follows:
 - a) plant height (tall & short)
 - b) seed shape (round & wrinkled)
 - c) seed color (yellow & green).

B. Key Words:

- 1) Heredity: the passing on of traits from parents to offspring.
- 2) Genes: segments of DNA located on the chromosomes that code for a particular trait.
- 3) Traits: physical or behavioral characteristics which are inherited from parents.

4) Alleles: alternative forms of a gene that govern the same trait.

5) Recessive trait: a trait that is visible only when two recessive alleles for a trait are inherited.

6) Dominant trait: the trait observed when at least one dominant allele for a trait is inherited.

7) purebred: an organism that inherits the same alleles for a particular trait.

8) hybrid: an organism that inherits two different alleles for a trait.

9) Punnett square: a tool used to visualize all of the possible combinations of alleles from parents.

10) genotype: the inherited combination of alleles.

11) phenotype: an organism's inherited appearance.

12) probability: the chance of an event or combination of alleles occurring and hence result in the organism's inherited traits.

13) P Generation: parents of an organism.

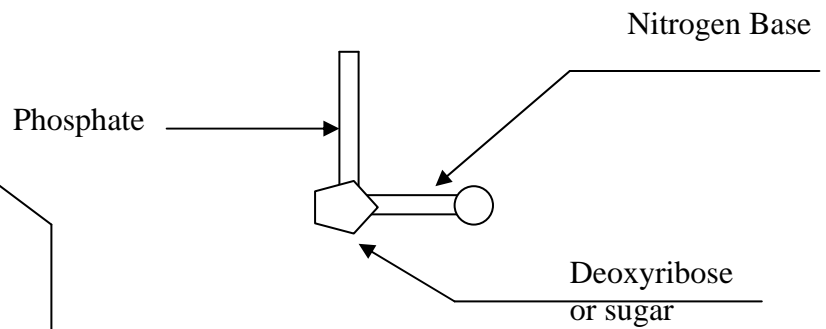
14) F₁ Generation: the offspring from the P Generation.

15) F₂ Generation: the offspring from the F₁ Generation or grandchildren of the P Generation.

16) homozygous: same as purebred genotype (e.g. TT, tt, WW).

17) heterozygous: same as hybrid genotype (e.g. RW, Tt).

NUCLEOTIDE



D. Complete Dominance vs. Incomplete Dominance genes:

Complete Dominance:

a) condition in which dominant genes completely hide or mask recessive genes.

b) the same letter is used to represent both the dominant and recessive forms of a gene.

c) but, capital letters are used to represent dominant genes and lower case letters represent recessive genes.

Incomplete Dominance:

a) condition in which dominant genes incompletely hide other genes and results in a "blending" of traits.

b) different capital letters are used to represent different forms of a gene (e.g. R = red, W = white).

c) a hybrid is represented by a mixture of capital letters (e.g. RW).

RELATIONSHIP BETWEEN A CHROMOSOME, DNA AND A GENE

