GREGOR MENDEL, 1822-1884
"The father of heredity"

Figure 1: Image of Gregor Mendel

Mendel was the first person to analyse and look into the characteristics of generations and thus came to be considered as the father of heredity. The famous pea experiments were the beginning of Mendelian result and he started by growing a number of different varieties. These varieties consisted of different coloured seeds, different seed shapes, different pod colours, different pod shapes, different coloured flowers, different positioned flowers and different plant heights (see fig 2). He grew these for several years to ensure that they (offspring) were always the same. He did this by allowing the plants to self pollinate and sorted out only the pure breeding plants that he wanted. These plants were used as the parents in the next step (Parental) he named this first generation the F1 generation (F1 for parental). The second step was when he chose potential two different combined the F1 generation (hybrid/cross) (hetero). The offspring were named the F2 generation (F2 for two), meaning brothers and sisters). The third step involved the F1 generation self pollinating and the offspring were named the F2 generation. Mendel believed an organism inherits alleles (units of trait). These can have different alleles, and an organism can have two alleles either the same or one of each (hom). The two dominant alleles of a gene is known as homozygous and if the offspring contained one of each it would be known as heterozygous. Mendel concluded this by using letters or signs to represent the alleles. For example homozygous would be AA or aa and heterozygous would be Aa. He used upper case to signify that the organism was dominant in the trait, and lower case to signify that the organism was "recessive" for the trait. In alleles that are dominant means that the expression of the organism is not the same as the allele inherited. And an allele which is overwritten / joined with a dominant one is known as recessive.

From the pea experiment where Mendel grew an estimated 28,000 pea plants over eight years, he noticed a pattern found. The F1 generation always had offspring exhibiting only one of the parental characteristics (not their blended/parental trait). The F2 generation always had offspring exhibiting both parental traits. Mendel concluded the dominant trait in F1 generation as dominant and the trait overlaid the F1 generation and so in the F2 generation it was called recessive.

The trait segregated and disappeared in the hybrid plants, and Mendel concluded correctly about the conclusions about what was happening deep inside the cell. He found a ratio of 3:1 when the crossed monohybrid with monohybrid (Aa x Aa). Mendel then went onto cross plants which differed in more than one trait and again found a predictable ratio. This was 9:3:3:1 when he crossed dihybrid with dihybrid (AaBb x AaBb). This conclusion that Mendel made was passed unknowingly to the offspring and were not broken in any other way.

The experiments showed both monohybrid inheritance and dihybrid inheritance. Monohybrid inheritance is the pattern of inheritance of a characteristic influenced by a single pair of alleles. Dihybrid inheritance is the study of the inheritance of two characteristics that are determined by genes on different non-homologous chromosomes. Mendel showed monohybrid inheritance when the organisms self pollinated from the dominant, such as tallness and white seed in the plant, and self pollinated the two that showed the different genes when the seed has different characteristics in the experiment, such as a yellow seed with round seed and a green seed with a wrinkled seed. Including the results of dihybrid cross method more complicated than providing the evidence of a monohybrid cross. This is because all possible combinations of the two alleles for the two traits for each parent gametes, and then all the