- Genetics
- Chapter 1

1. What were the big milestone moments covered?
   - Genetics is rooted in the research of Gregor Mendel, a monk who discovered how traits are inherited.
   - The molecular basis of heredity revealed when James Watson and Francis Crick elucidated the structure of DNA.
   - The Human Genome Project is currently engaged in the detailed analysis of human DNA.
2. What is a Gene?
   - Gregor Mendel postulated the existence of particular factors responsible for the traits he studied, these factors are Called Genes.
   - He discovered that these genes exist in different forms, called Alleles.
   - Different Alleles of a gene can be brought together through Hybridization and can then be separated from each other during production of gametes.
   - Alleles of the same gene separate during formation (Rules of inheritance).
   - Alleles of different gene are inherited independently.(Rules of inheritance).
   - Genes consist of complex molecules called Nucleic acids.
   - Nucleic acids are made of elementary building blocks called Nucleotides.
   - Each nucleotide has 3 components:
     1- A sugar molecule.
     2- A Phosphate molecule. (has acidic chemical properties).
     3- A nitrogen - Containing molecule. (has basic chemical properties).
   - In ribonucleic acid (RNA) the sugar is ribose.
   - In deoxyribonucleic acid (DNA) the sugar is deoxyribose.
   - Within RNA or DNA, one nucleotide is different from another by its nitrogen - Containing base.
   - In RNA, four kinds of bases are:
     1- adenine (A)
     2- guanine (G)
     3- Cytosine (C)
     4- uracil (U)
   - In DNA:
     1- adenine (A)
     2- cytosine (C)
     3- guanine (G)
     4- Thymine (T)
   - In both DNA and RNA there are Four Kinds of nucleotides, but Three of them are shared by both types of nucleic acid molecules.