4.1 DNA, GENES AND CHROMOSOMES

Genes

- Found at a specific position on a DNA molecule
  - Locus
- Base sequence of DNA
  - Codes for the amino acid sequence of a polypeptide, or a functional RNA
    - Ribosomal RNA and transfer RNA
- Genetic code
  - Sequence of three bases e.g. GGA codes for a specific amino acid e.g. glycine
    - Non-overlapping
  - Multiple triplets code for one amino acid
    - Degenerate
  - Universal
    - Each triplet codes for the same amino acid in every organism

Eukaryotic cells

- Most of the DNA does not code for proteins
  - Large regions of repeats of bases between genes
  - Exon = coding sequence within a gene
  - Intron = non-coding sequence within a gene
- DNA is long and linear
  - DNA and histones are tightly coiled to form chromosomes
  - Associated with proteins (histones)
- Mitochondria and chloroplasts contain DNA

Prokaryotic cells

- DNA is short and circular
  - Not associated with proteins
- Same type of DNA in prokaryotes as mitochondria and chloroplasts

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