DNA, genes and chromosomes

Nucleotides

- Deoxyribose
- Phosphate group
- Organic base guanine, adenine, thymine, cytosine

Polynucleotide strand

Two nucleotides join together by phosphate groups via condensation; they form a sugar-phosphate backbone.

Base pairing

Two nucleotides with complimentary bases join together by hydrogen bonding.

Guanine E Cytosine (three hydrogen bonds)

Adenine = Thymine (two hydrogen bonds)

DNA has two polynucleotide strands

One strand has a base sequence that is complimentary to the other strand; the two strands run in opposite directions – anti-parallel strands. The two polynucleotides form a double helix formation.

DNA and the genetic code

The genetic code is the order of bases in DNA; this sequence of amino acids and the nature of proteins.

A sequence of three bases (base

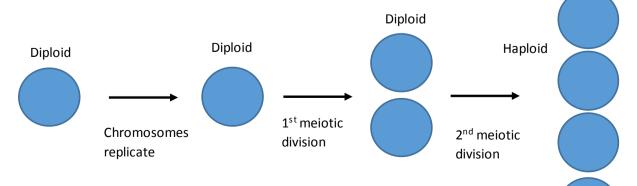
Chromosomes

Each DNA molecule is surrounded by proteins called histones and forms a chromosome. The code for a single polypeptide is called a gene. Non-coding DNA within a gene are called introns and coding DNA is called exons.

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DNA feature	Prokaryotic cells	Eukaryotic cells
Length	Short – few genes	Long – many genes
Shape	Circular	Linear
Number of different molecules per cell	One	More than one
Non-coding DNA	Absent	Present

Meiosis



These make the DNA molecule stable.

ach amino acid.