

AQA Biology A-level

4.1 - DNA, genes and chromosomes

Flashcards

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What are the three components of nucleotides?



What are the three components of nucleotides?

A pentose sugar, a phosphate group, an organic base.



Describe the structure of DNA.



Describe the structure of DNA.

Made up of a deoxyribose sugar, a phosphate group, and one of four organic bases (A, C, G, T). It is double-stranded, and hydrogen bonds between the bases form a helix shape.



Describe the role of DNA.



Describe the role of DNA.

Carries genetic information, determines our inherited characteristics.



Describe the structure of RNA.



Describe the structure of RNA.

Made up of a ribose sugar, a phosphate group, and one of four organic bases (A, C, G, U). It is single stranded.



Describe the role of RNA.



Describe the role of RNA.

Transfers genetic information from DNA to ribosomes for protein synthesis.



Which bases are purine and which are pyrimidine?



Which bases are purine and which are pyrimidine?

Purine (double ring) = adenine, guanine.

Pyrimidine (single ring) = cytosine,
thymine, uracil.



How is DNA in eukaryotic cells different from in prokaryotic cells?



How is DNA in eukaryotic cells different from in prokaryotic cells?

- Eukaryotic cells= found in nucleus, long and linear. Associated with histone proteins to form chromosomes. Mitochondria and chloroplasts contain prokaryotic-like DNA.
- Prokaryotic cells= short and circular. Not associated with proteins.



What is the genetic code?



What is the genetic code?

The order of bases on DNA. Consists of codons (triplets of bases that code for a particular amino acid).



Identify features of the genetic code.



Identify features of the genetic code.

- Non-overlapping= each triplet is only read once.
- Degenerate= more than one triplet codes for the same amino acid (64 possible triplets for 20 amino acids).
- Universal= same bases and sequences used by all species.



What is a gene?



What is a gene?

A sequence of bases on a DNA molecule that codes for a specific sequence of amino acids to make a polypeptide. Can also code for functional RNA.



What is a locus?



What is a locus?

The fixed position on a DNA molecule occupied by a gene.



What is an allele?



What is an allele?

Different versions of the same gene,
found at the same locus on a
chromosome.



What are exons and introns?



What are exons and introns?

Exons= regions of DNA that code for amino acid sequences. Separated by one or more introns.

Introns= regions of DNA that do not code for anything.



Where are introns found?



Where are introns found?

between exons

within genes

