

WJEC England Biology GCSE

7.1 - The genome and gene expression

Flashcards

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What is a chromosome?



What is a chromosome?

Tightly packaged DNA around histone proteins



What is a gene?



What is a gene?

A section of DNA that codes for a protein



Describe the structure of DNA



Describe the structure of DNA

- It is a polymer made of many nucleotide monomers
- It is made of 2 strands in the shape of a double helix



Give the letters that represent the 4
bases in DNA



Give the letters that represent the 4 bases in DNA

A T C and G



Describe the pairing rules in DNA



Describe the pairing rules in DNA

A pairs with T

C pairs with G



Name the 4 bases in DNA (Higher)



Name the 4 bases in DNA (**Higher**)

Adenine (A), Thymine (T), Cytosine (C)
and Guanine (G)



Describe transcription (Higher)



Describe transcription (Higher)

- 1) DNA unzipped
- 2) Complementary mRNA nucleotides bind and are joined together
- 3) mRNA detaches and leaves the nucleus



Describe translation (Higher)



Describe translation (Higher)

- 1) mRNA travels to a ribosome
- 2) Carrier molecules carry specific amino acids to the ribosome based on the mRNA sequence
- 3) The amino acids are joined together



How does the sequence of DNA affect
the protein made in protein synthesis?
(Higher)



How does the sequence of DNA affect the protein made in protein synthesis? (Higher)

DNA is a triplet code where 3 bases code for one amino acid and the order of amino acids determine the protein produced



What are alleles?



What are alleles?

Different versions of the same gene



What is the difference between coding
and non-coding DNA? (Higher)



What is the difference between coding and non-coding DNA? (Higher)

Coding DNA is used in protein synthesis whereas non-coding DNA is used in regulation



What type of DNA is most of the genome made of (coding or non-coding)?
(Higher)



What type of DNA is most of the genome made of (coding or non-coding)? **(Higher)**

There is more non-coding DNA (approximately 80% compared to 20% of coding DNA)



What is genetic profiling?



What is genetic profiling?

A method of comparing DNA by cutting it into fragments and comparing the fragments with each other



What is the genome?



What is the genome?

All of the genes present in an organism



What is the human genome project?



What is the human genome project?

A worldwide project to synthesise the entire human genome



Why is the human genome project important?



Why is the human genome project important?

It can be very useful in medicine to provide treatments like personalised medicine and understanding inherited diseases

