WJEC England Biology GCSE

7.1 - The genome and gene expression

Flashcards

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