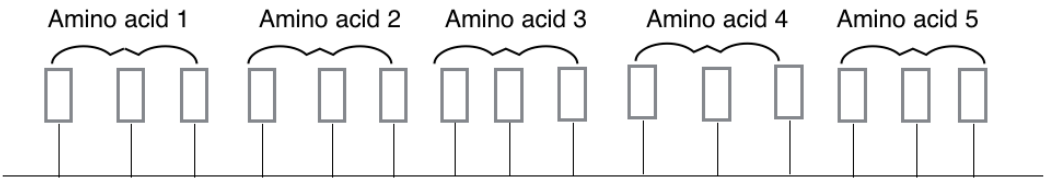
0 1 A molecule of DNA contains four different bases.

The four bases are arranged in a long chain. The chain of bases controls the synthesis of a protein.

For example, the chain of bases could make a protein that determines eye colour. The diagram below shows some bases along a strand of DNA.



0 1 . 1 What word is used to describe 'a small section of a DNA molecule that controls the synthesis of a protein'? **[1 mark]**

Gene/allele [1]

TOP TIP : remember an allele is a form of a gene so it is an acceptable answer

0 1 . 2 In a cell, where are proteins synthesised?

[1 mark]

ribosomes [1]

0 1 . 3 Describe how proteins are synthesised from a chain of bases in DNA. Use the diagram to help you answer this question. **[3 marks]**

amino acids make up a protein [1]

(protein is) particular combination/sequence of amino acids [1]

bases work in threes/triplets [1]

each triplet/group of 3 bases code for one amino acid [1]

0 1 . 4 Mistakes sometimes occur when DNA molecules are copied during cell division.

Suppose that one of the bases, base **A**, was substituted by a **C** base.

What might be the effect of this change in structure of the protein?

[1 mark]

protein made incorrectly/would not function properly [1]

TOP TIP : In this case, you'd be given 'change eye colour' as it is mentioned in the question