Polypeptide synthesis – transcription and splicing

- DNA provides the instructions – a long sequence of nucleotides and bases they possess.
- A complimentary section of part of this sequence is made in the form of a molecule of pre-mRNA transcription
- Pre-mRNA is spliced to form mRNA
- The mRNA is then used as a template to which complimentary tRNA molecules attach and the amino acids they carry are linked to form a polypeptide-translation

Splicing

DNA is composed of section of introns and exons. Introns do not code for polypeptides and exons do.

The introns would interfere with polypeptide synthesis so they need to be removed – this occurs through the process of splicing

It takes place in a series of reactions. Commonly they are catalysed by a spliceosome (a complex protein unit) but this can vary.

Once the introns are removed the remaining exons can be re-joined in a number of different combinations.

In certain disorders such as Alzheimer's disease it is the result of splicing failures that leads to non-functional proteins.

Summary

RNA polymerase joins the nucleotides from the template strand to free moving complimentary nucleotides to form a strand.
DNA helicase is also an enzyme which breaks the hydrogen bonds between the base pairings.
Splicing is needed to remove introns so exons can join.