

- **Genetic code = the relationship between DNA nucleotide bases and amino acids.**
 - There are only 20 amino acids which are usually needed to build proteins so some combinations of bases code for the same amino acid.
 - The code is **degenerate** – some amino acids are coded for by more than one codon ∴ most amino acids have more than one triplet code.
- The start of a sequence is always the same triplet code amino acid methionine.
 - NB if this first methionine molecule does not form a polypeptide, it is later removed.
- **Number of codons > number of amino acids.**
- The triplet code is **non-overlapping**, i.e. each base in the sequence is read only once.
- The code is **universal** (with a few minor exceptions, it is the same in all organisms).

Codon- a triplet of bases that codes for an amino acid on mRNA

A particular sequence of bases therefore codes for a specific amino acid sequence. When the amino acids are assembled into a polypeptide, they interact to twist and bend the chain into its final shape. When the polypeptide chain is complete it forms all or part of a protein which performs a vital role in the organism.

Start and stop codons:

'START' codons include the **start** of a gene & **initiate protein synthesis:**

'STOP' codons occur at the **end** of a polypeptide chain

- There are **three triplet codes** that do not code for any amino acid but are the **'stop codes'** and mark the end of a polypeptide chain.
- **Introns:**
 - Regions of DNA on a gene that **do not code** for amino acids. (in eukaryotes)
 - Copied onto mRNA but are removed by enzymes before leaves nucleus.
- **Exons:**
 - Transcribed and translated part of the gene i.e sections of DNA that do code for amino acids.

Eukaryotic and prokaryotic DNA

Prokaryotic	Eukaryotic
DNA molecules are small and circular.	DNA is much longer & linear