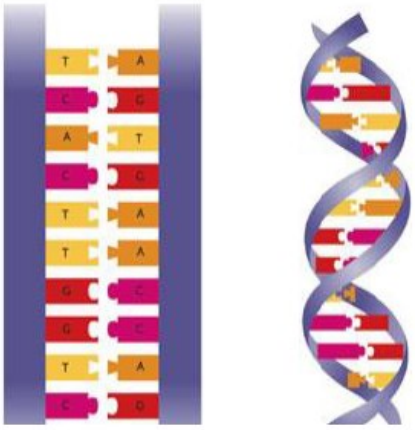
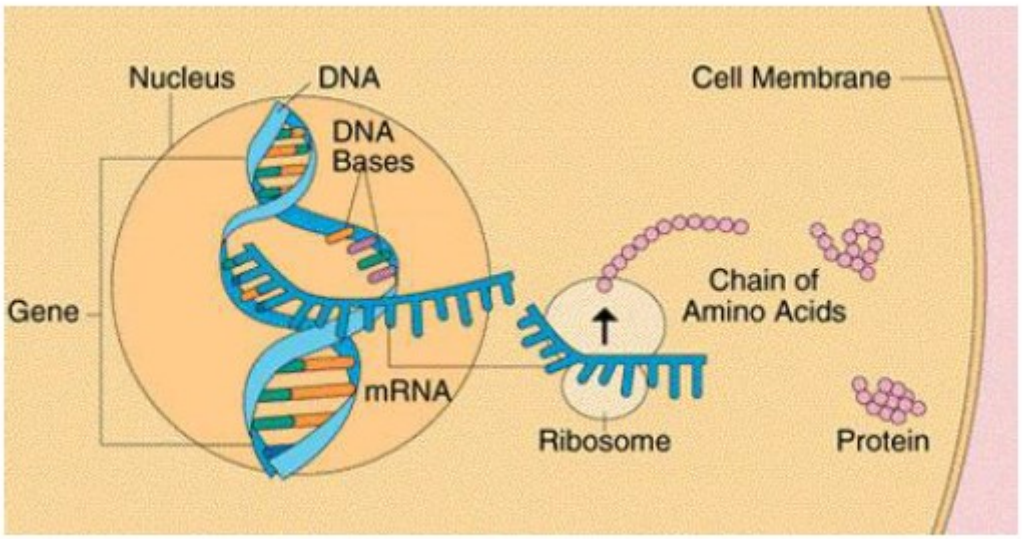
Unit 1 Key Area 3 DNA and the production of proteins

(a) Structure of DNA

DNA is a **DOUBLE-STRANDED HELIX** held by complimentary base pairs.



DNA carries the genetic information for making **proteins**.



The 4 bases : **Adenine(A)**

Cytosine(C)

Guanine(G)

Thymine(T) make up the genetic code.

A is always paired with **T**

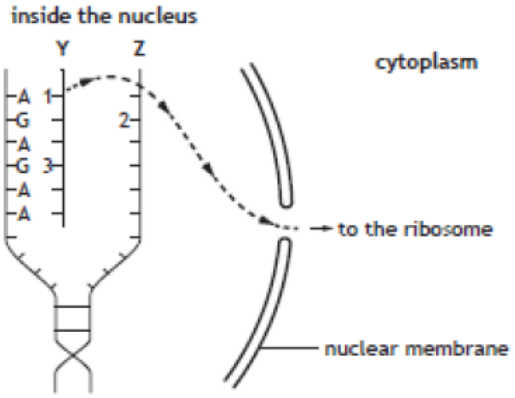
C is always paired with **G**

The base sequence determines **AMINO ACID** sequence in proteins.

A **GENE** is a section of DNA which codes for a Protein.

(b) Making Proteins

Messenger RNA (mRNA) is a molecule which carries a **complimentary copy of the genetic code from the DNA**, in the **nucleus**, to a **ribosome**, where the **protein** is assembled from **amino acids**.



In this example molecule Y is the mRNA molecule taking a copy of the genetic code from the DNA.

There is no thymine base on a molecule of mRNA, instead T is replaced by a Uracil (U) base. In the example shown, base 1 on the mRNA would be U (replacing T) and base 3 on the mRNA would be C.

KNOWLEDGE OF URACIL ON mRNA IS NO LONGER REQUIRED FOR 2018 EXAM but may appear in past paper questions.