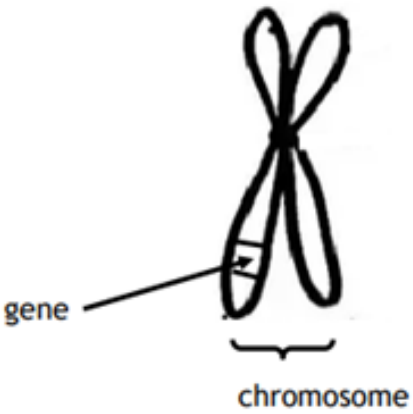
DNA

Function of DNA

Carries the **genetic information** for making **proteins.**



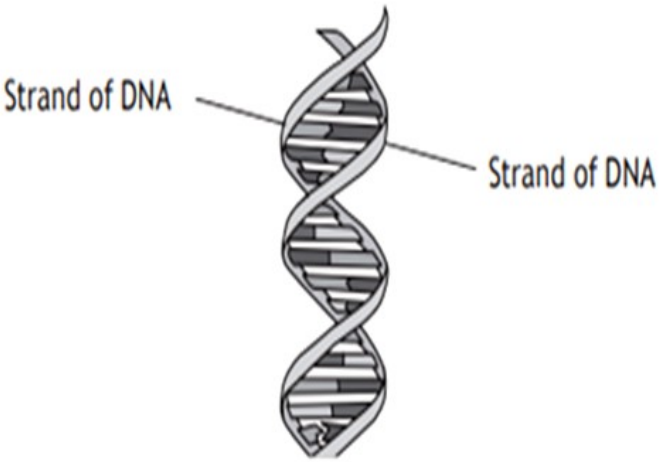
Gene

A gene is a section of DNA which codes for a **specific protein.**

Structure of DNA

DNA is made up of **two strands** which coil together to form a **double helix**,

The two strands of DNA are held together by **complementary base pairs**.



Complementary Bases

The four bases make up the **genetic code/information** for making **proteins**.

Adenine (A) always binds with **Thymine (T)**

Cytosine (C) always bind with **Guanine (G)**

Producing Proteins

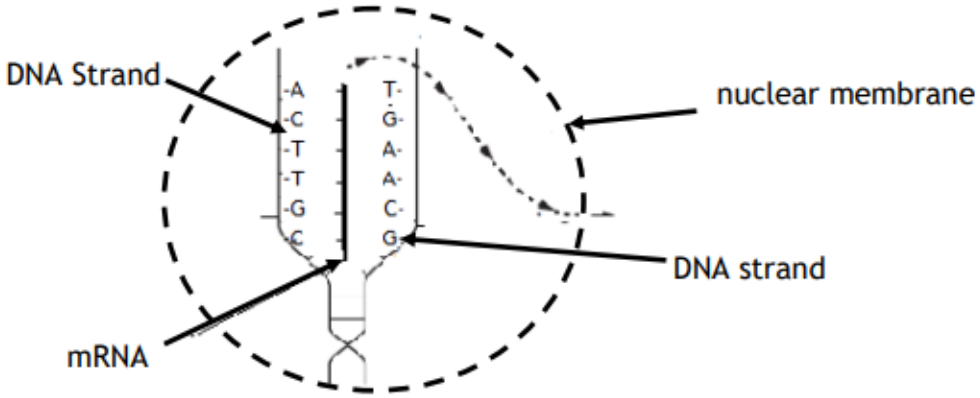
Stage 1: Nucleus

Complementary copy of the DNA code is made (mRNA)

DNA ⟶ mRNA

Function of mRNA (likely exam question)

Takes a **complementary copy** of DNA code from **nucleus** to the **ribosome.**



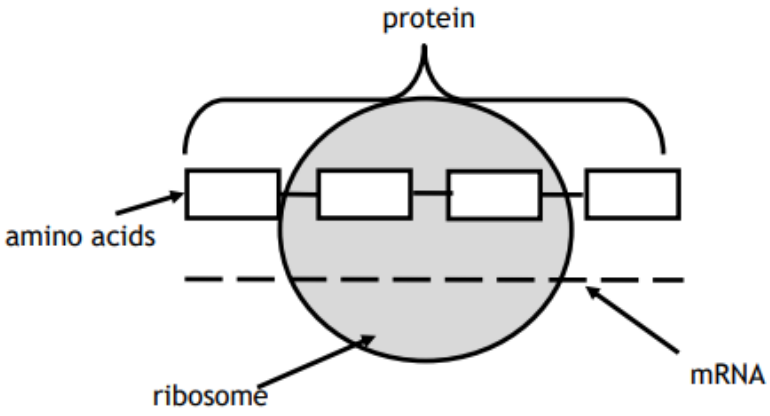
Stage 2: Ribosome

mRNA attaches onto the ribosome.

Depending on the **base sequence**, a specific **amino acid sequence** is created.

The **amino acids** assemble at the ribosome to form a specific **protein.**

mRNA base sequence ⟶ Amino Acid sequence ⟶ Specific protein



Different types of Proteins

Production of Different Proteins

Different proteins are produced at the ribosome due to different DNA base sequences.

Different DNA base sequence

↓

Different Amino Acid sequence

↓

Different Protein shape & function

Types of Proteins SHARE/HEARS

Type of Protein	Function
Structural	Provides support to the membrane.
Hormone	Chemical messengers that travel in bloodstream.
Antibodies	Defend the body against pathogens.
Receptors	Complementary to a specific hormone at the target organ to cause a response.
Enzymes	Biological catalyst that speeds up cellular reactions but are unchanged in the process.

Common exam question

Q. Describe how different types of proteins can be produced.

A. **Different DNA base sequence** would result in **different proteins** being made.