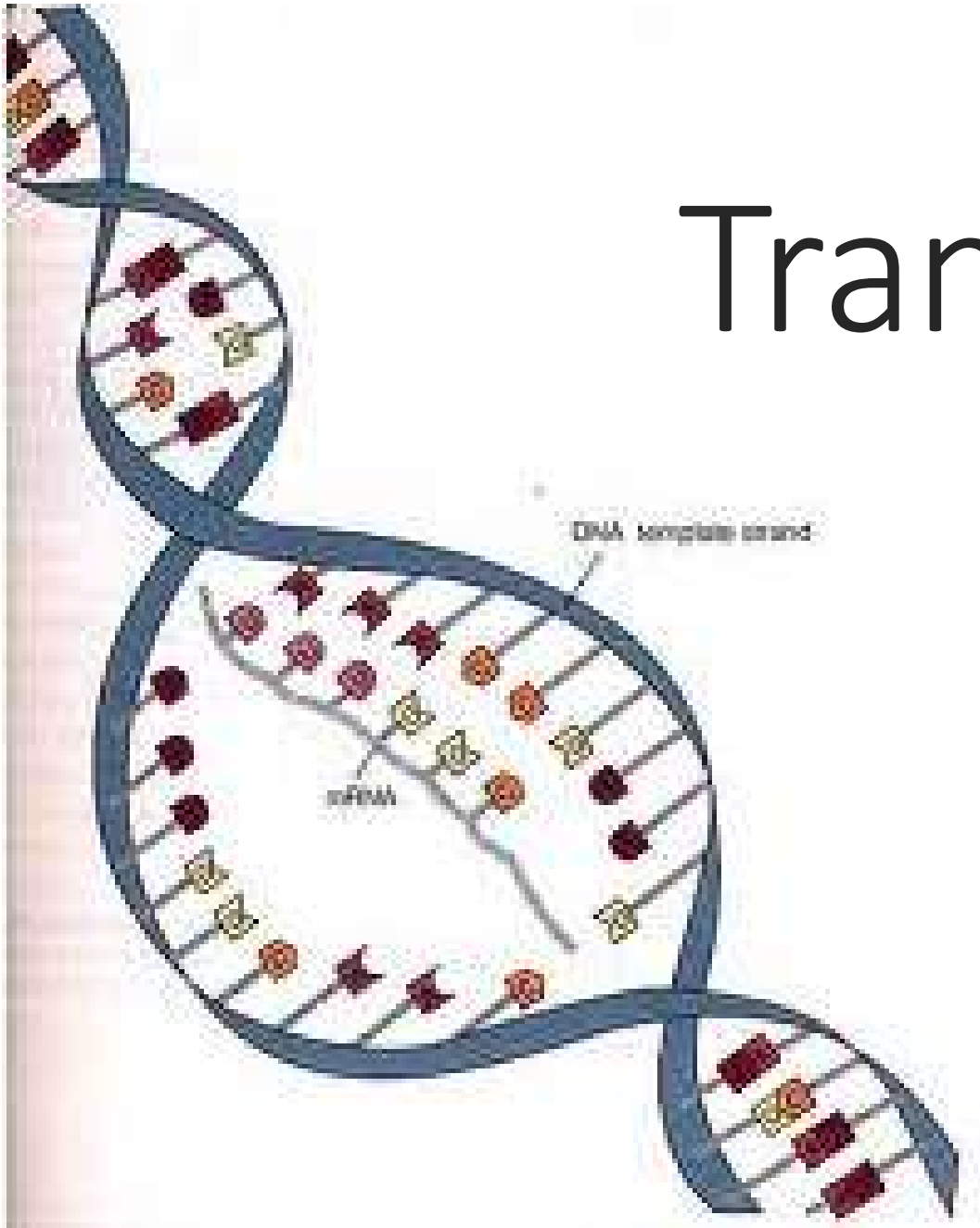


Bell Ringer

RNA polymerase not only adds RNA nucleotides together to create an mRNA sequence, but it also has the same function as what other enzyme that starts off DNA replication?

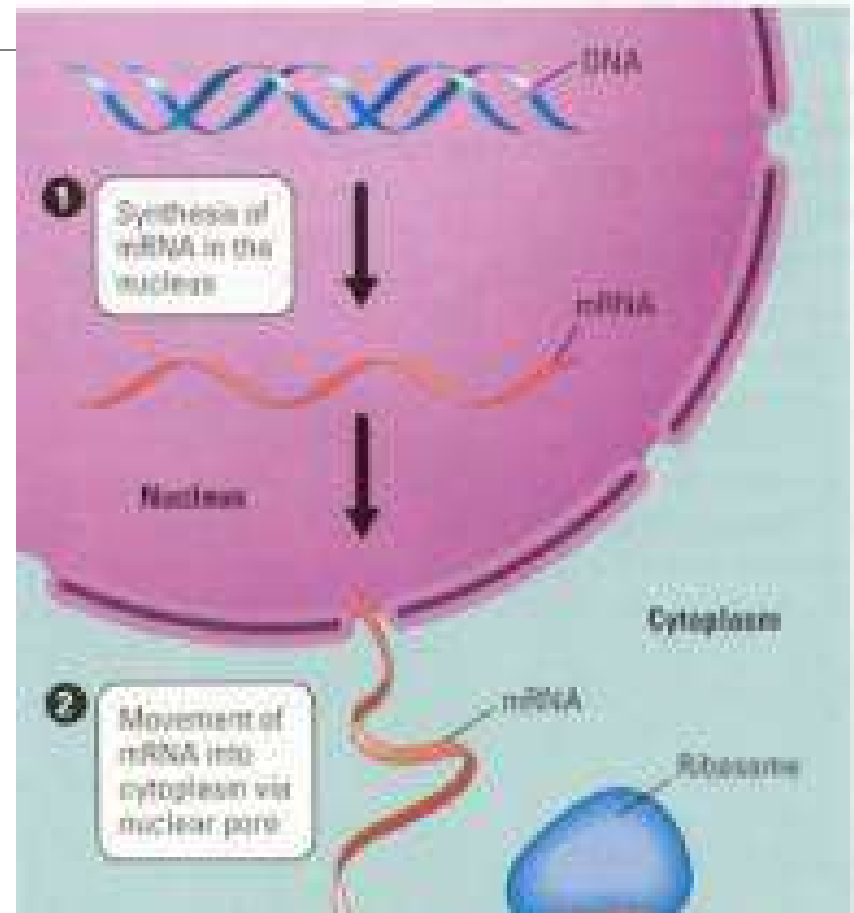
Transcription



Purpose

To create a copy of a DNA sequence that can leave the nucleus and provide instructions for making a protein.

mRNA is single-stranded, small enough to leave the nucleus.



Purpose

To “transcribe” means to copy.

Example: one person writes a sentence, another person copies that sentence.

The cat in the hat.

The cat in the hat.



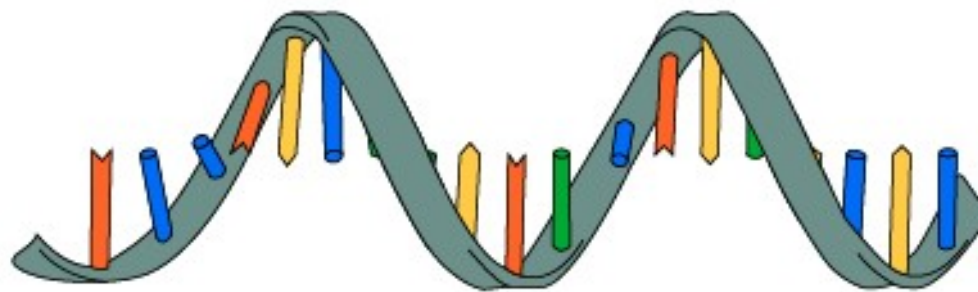
What is RNA?

Single-stranded nucleic acid

Has a different type of sugar backbone

- ribose sugar, not deoxyribose sugar

Different nucleotides

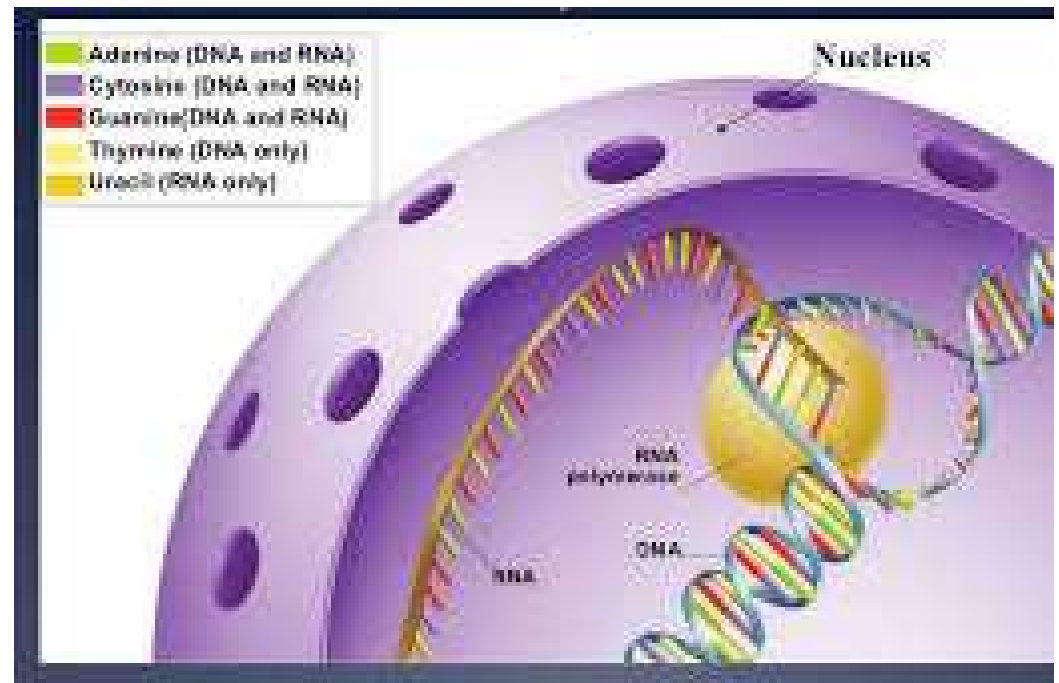


Where does it happen?

The nucleus

- Where DNA is stored.

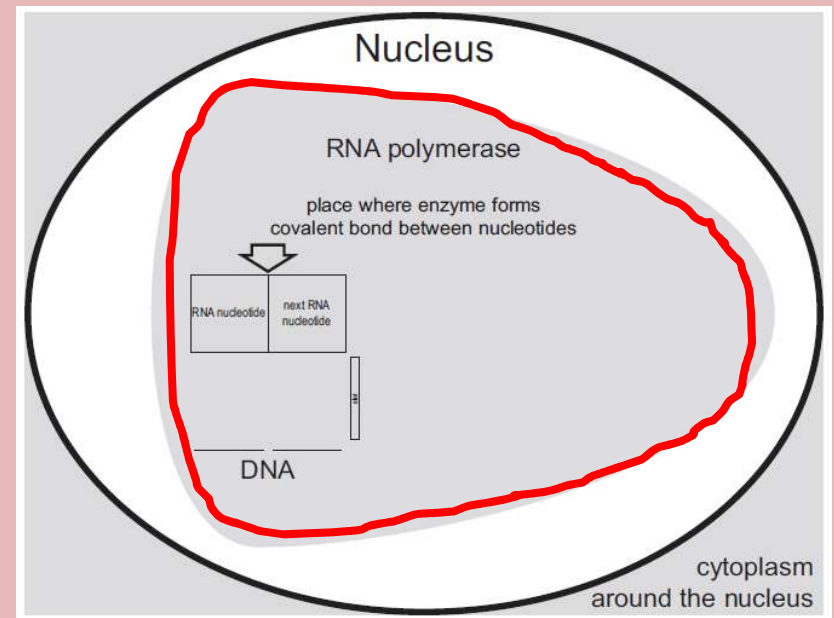
RNA polymerase is the enzyme that adds nucleotides to create mRNA strand.



Model: Step 1

Have your white nucleus model sheet in front of you.

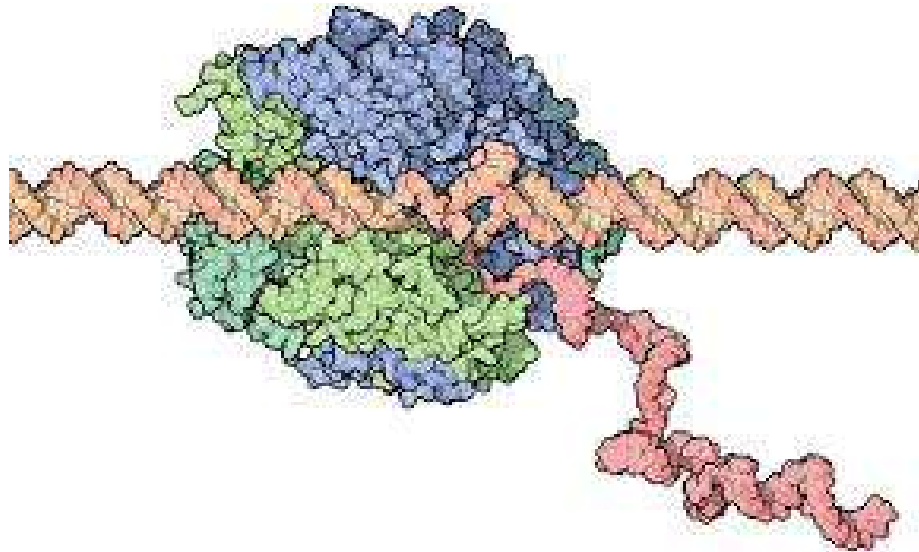
Outline the RNA polymerase on the sheet.



RNA Polymerase

Similar to DNA polymerase.

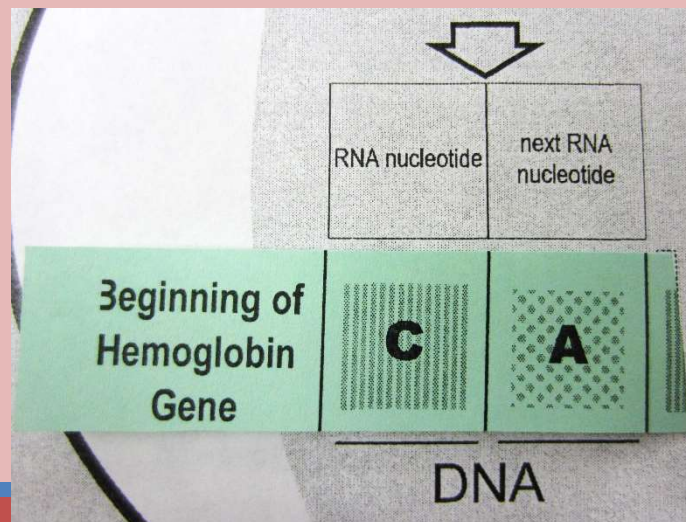
Creates mRNA (messenger RNA) from a DNA template.



Model: Step 2

Take your green gene template and thread it through the slit in your RNA polymerase.

Line up the first two bases with the two blank spaces labeled “DNA”.

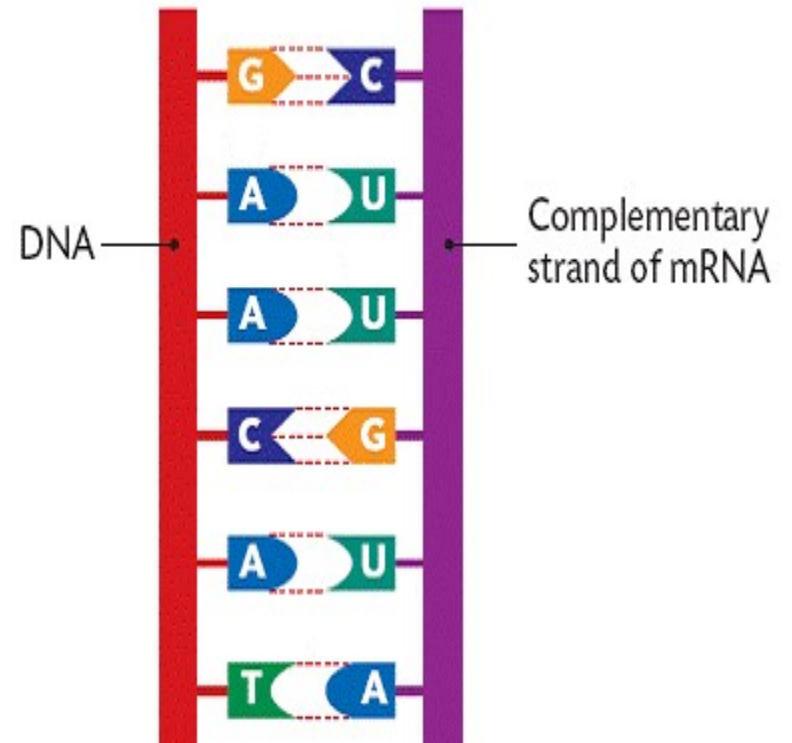


RNA base pairs

Uracil pairs with adenine, rather than thymine.

- A → U
- C → G

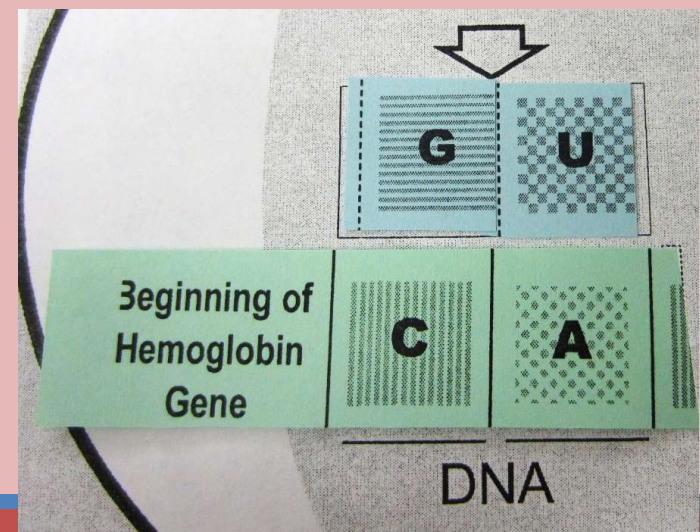
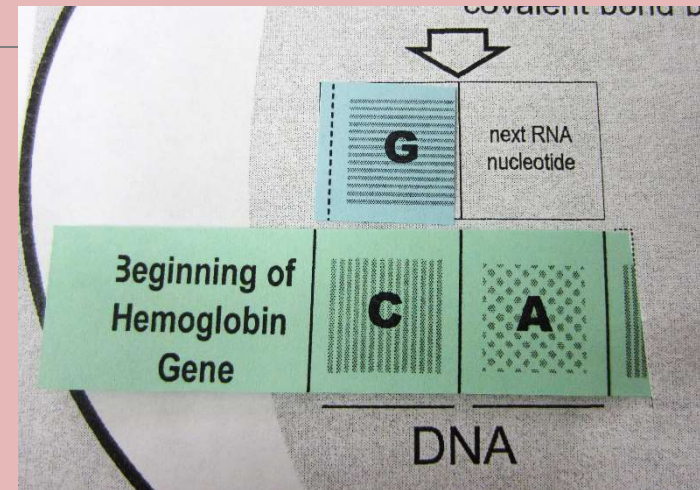
RNA strands have no T's



Model: Step 3

Cut the blue RNA nucleotides (leave some space on the left side so you can glue pieces together).

Pair the blue nucleotides with the green DNA template.



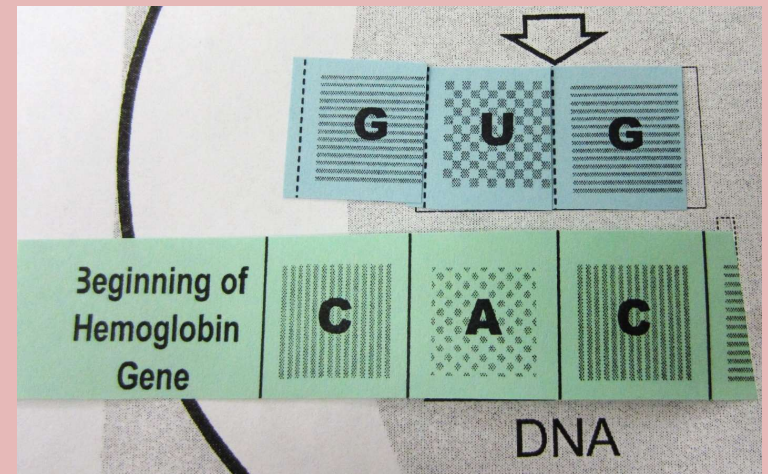
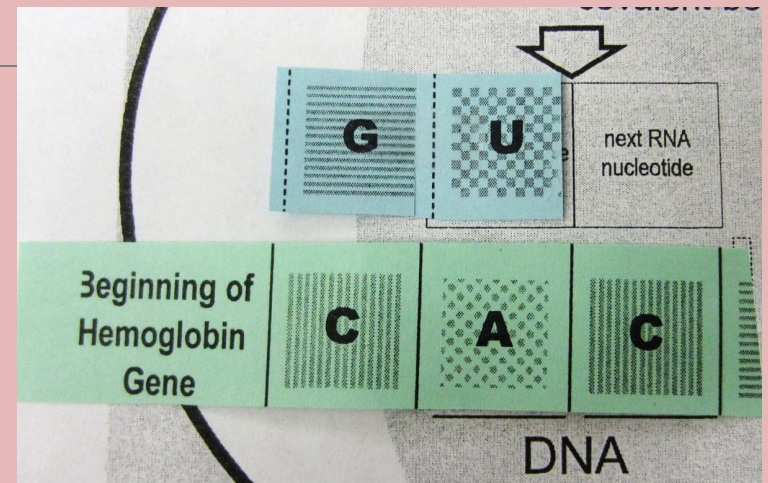
Model: Step 4

Glue the two blue nucleotides together.

Slide the green DNA template over one space.

Slide the blue mRNA strand over one space.

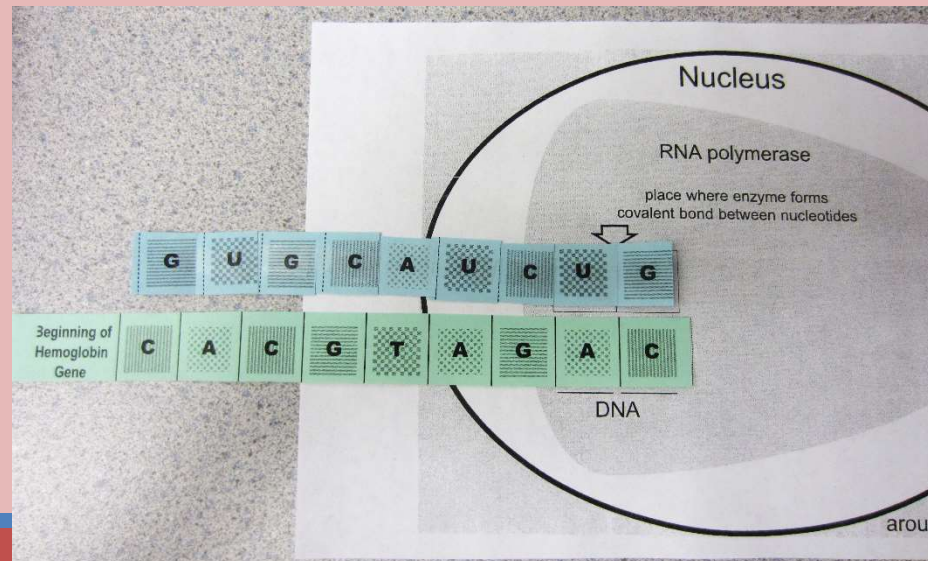
Add a new blue nucleotide.



Model: Step 5

Finished mRNA strand will use all the blue nucleotides.

Should have a green DNA template and a complementary blue mRNA strand.



After transcription

mRNA strand leaves
the nucleus.

The code will be read
to create an amino
acid sequence
(protein).

