Protein Synthesis Part 1- Transcription [How to Build a Protein]

Where are the Instructions (Recipes) for Making Proteins?

- _____= section of DNA that contains instructions for making a protein

What Do You Need to Make a Protein?

- DNA- "cookbook" for proteins
- _____- "helper" molecule
- _____- molecules that make the protein ("chef")

RNA ("Helper")

- RNA= ribonucleic acid
- Single-stranded
- Contains the sugar ribose
- Contains the base _____ instead of thymine
- 2 types we will focus on:
  1. _____= messenger RNA
  2. tRNA= transfer RNA

Steps to Making a Protein (Protein Synthesis)

There are 2 main steps needed to make a protein:

1. Transcription (DNA→mRNA)
2. Translation (mRNA→protein)

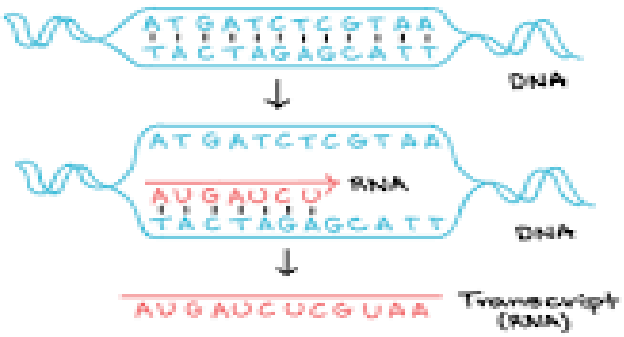
Step 1: _____ ("Copy the Recipe")

Problem: instructions for making proteins (genes in DNA) are protected in the nucleus, but proteins are made in the cytoplasm

Solution: make a copy of the gene ("recipe") that can leave the nucleus

Transcription Steps:

1. DNA unzips, _____ is used as a template for the "recipe" (gene that is being copied)
2. Enzyme called _____ creates a complementary mRNA
   RNA contains U (not T), so A in DNA pairs with U in RNA
3. mRNA leaves nucleus, DNA _____



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Knowledge Check

1.

	DNA	RNA
Single- or double-stranded?		
Uracil or thymine?		
Name of sugar		
Function		

2. What are the 3 basic steps of transcription?

3. If a gene has the following DNA sequence, what would be the sequence of the complementary mRNA?

   Gene: A T C G A T A A C