

DNA and Protein Synthesis

Name _____
Hour _____

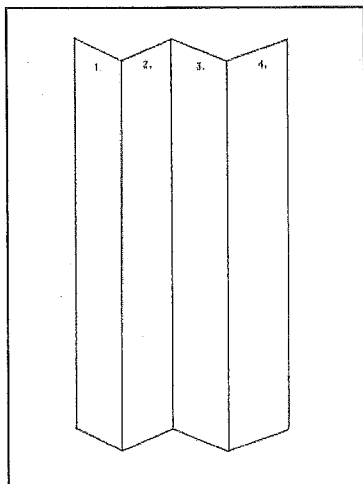
In this lab you will summarize and simulate the steps of the production of protein molecules by the DNA in the nucleus of the cell. Protein Synthesis involves two distinct stages: Transcription, where the "recipe" for the protein is copied by the messenger RNA; and Translation, where the copied message is converted from a series of bases on the mRNA to a series of amino acids in the protein.

Part I – Summary of Steps – Under each heading below, use your book and your notes to list the steps that must take place in each of the stages of protein synthesis. Be sure to mention where each stage occurs and all important events.

Transcription

Translation

Part II – Simulation – On the next page you will find a data table which will be used to simulate the protein synthesis steps you outlined above. Fold the sheet in a fan-fold as shown below.



- ✓ Fold the middle two sections to one side and line up the two DNA strand columns.
- ✓ Fill in the complementary bases that must be on strand 2.
- ✓ Fold the paper in half so the DNA strand 1 and mRNA columns are showing.
- ✓ Fill in the complementary RNA bases that must match the bases in DNA 1.
- ✓ Fold both DNA columns under so that the mRNA and Amino Acid columns are showing.
- ✓ Use the Codon Table to figure out which Amino Acids must be in the Protein.
- ✓ Staple your completed table to this sheet and hand them in.

DNA Strand 1	mRNA	Amino Acid	DNA Strand 2
T			
A			
C			
A			
A			
T			
C			
C			
G			
A			
G			
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