Name Date Class

MiniLab 11.1

Predicting

Transcribe and Translate

Molecules of DNA carry the genetic instructions for protein formation. Converting these DNA instructions into proteins requires a series of coordinated steps in transcription and translation.

Procedure

1. Use the data table below.
2. Complete column B by writing the correct mRNA codon for each sequence of DNA bases listed in the column marked *DNA Base Sequence*. Use the letters A, U, C, or G.
3. Identify the process responsible by writing its name on the arrow in column A.
4. Complete column D by writing the correct anticodon that bonds to each codon from column B.
5. Identify the process responsible by writing its name on the arrow in column C.
6. Complete column E by writing the name of the correct amino acid that is coded by each base sequence. Use *Table 11.1* on page 292 of your text to translate the mRNA base sequences to amino acids.

Data Table

	A	B	C	D	E
DNA base sequence	Process	mRNA codon	Process	tRNA anticodon	Amino acid
AAT					
GGG					
ATA					
AAA					
GTT					

Analysis

1. Where within the cell:
   a. are the DNA instructions located?

   b. does transcription occur?

   c. does translation occur?

2. Describe the structure of a tRNA molecule.

3. Explain why specific base pairing is essential to the processes of transcription and translation.