Test for DNA to Protein Synthesis Activity

Name_____ Teacher _____
Date_____ Class _____
Check one:
___ Pretest
___ Posttest

1a. How many amino acids will result from the following strand of DNA?
A C G C C C A A A T A C

a. two
b. four
c. eight
d. twelve

Answers B	1
Other	0

1b. Explain your choice.

Response includes…	
Every triplet of nucleotides in a nucleic acid sequence specifies a single amino acid. There are four triplets in this sequence.	2
You need more then one nucleotide to code for an amino acid. Answer doesn't include specifics.	1
Other	0

2. Which of the following best describe the function of DNA in protein Synthesis?

a. The sequence of amino acids in DNA is copied to create a new protein.
b. The sequence of nucleotides in the DNA creates a protein directly in the nucleus.
c. The sequence of amino acids in the DNA instructs a cell on how to make proteins.
d. The sequence of nucleotides in the DNA instructs a cell on how to make proteins.

Answers D	1
Other	0

3. Describe in sequence, the process of protein synthesis. (Hint: Include at least 5 steps)

Explanation Score

	Response includes…
Complete (3)	• DNA serves as a blueprint for proteins • Transcription occurs. This is the process through which a DNA sequence is copied to produce a complementary RNA. • The newly formed mRNA travels from the nucleus into the cytoplasm and attaches to a ribosome. • At ribosome translation occurs. This is the process that converts an mRNA sequence into a chain of amino acids that form the protein. • The ribosome moves along the mRNA strand reading each codon. The tRNA anticodon bonds to it complementary codon. The amino acid carried by the tRNA is bonded to the polypeptide • The resulting polypeptide chain once complete folds in the cytoplasm into a specific shape.
Mostly complete (2)	At least 3 of the steps above in proper sequence. The steps need to convey the full sequence including DNA contains the code that is copied to produce mRNA, the mRNA is translated, a process by which tRNA caries amino acids to complimentary codon, and amino acids bond together resulting in a peptide change.
Partial (1)	Just mentions transcription and translation but doesn't provide enough detail or proper sequence.
Incorrect (0)	Other