

Lab: Protein Synthesis

Driving Question: How does the DNA code make proteins (“flesh and blood”)?

| Learning Goals: | Advanced | Proficient | Partially Proficient | Not Yet Proficient |
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| <p>Describe the major steps in DNA transcription.</p> <p>Describe the major steps in translation.</p> <p>Describe the role of DNA, RNA polymerase, mRNA, ribosomes, and tRNA.</p> <p>List the differences between RNA and DNA.</p> | <p><i>In addition to meeting the “Proficient” criteria:</i></p> <ul style="list-style-type: none"> - Video quality is clear and easy to follow. - Practice is apparent and a script was written - Additional details are included <p>TATA box RNA processing (GTP and poly-A tail) 3'-->5' antiparallelism</p> <ul style="list-style-type: none"> - Analogies are used to help explain the process | <ul style="list-style-type: none"> - Transcription is described accurately, including the role of RNA polymerase and base pairing rules. - The location of DNA and mRNA is described in context - The differences between DNA and mRNA are described. - The video shows how the mRNA goes to the ribosome to be translated. - The process of translation is described fully including the role of tRNA, codons, anti-codons, and amino acids. - The mRNA codon chart is explained, including the start codon (AUG). - All materials are used appropriately and accurately. | <p>Some errors in the process or parts of the process are missing.</p> | <p>Large holes in the process or large errors.</p> |

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Prompts:

Video Project Guiding Questions

Use these questions below to help you form your script.

1. The purpose of protein synthesis is to create a _____.
 2. The process of transcription occurs in the _____ (part of the cell).
 3. What does the gold "strand" represent? _____
 4. What enzyme is responsible for transcription? _____
 5. What is the product of transcription? _____
 6. What are the 3 parts to an RNA nucleotide?

1. What is the sugar found in RNA? _____
 2. Where does mRNA go after being created? _____
 3. What cell part helps make the amino acid chain? _____
 4. What type of bond holds the amino acids together? _____
 5. What is the purpose of tRNA? _____
 6. What codes for the specific amino acid that will be brought to the mRNA?
triplet _____
1. What is the anticodon? _____
 2. The process of translation translates the _____ into a _____.