Transcription and Translation Practice
Protein Looping Activity
Student Guide

Objective:

Transcribe and translate a section of DNA codons. Students will show an understanding the DNA codons must be transcribed into RNA codons before being translated into amino acids.

Background:

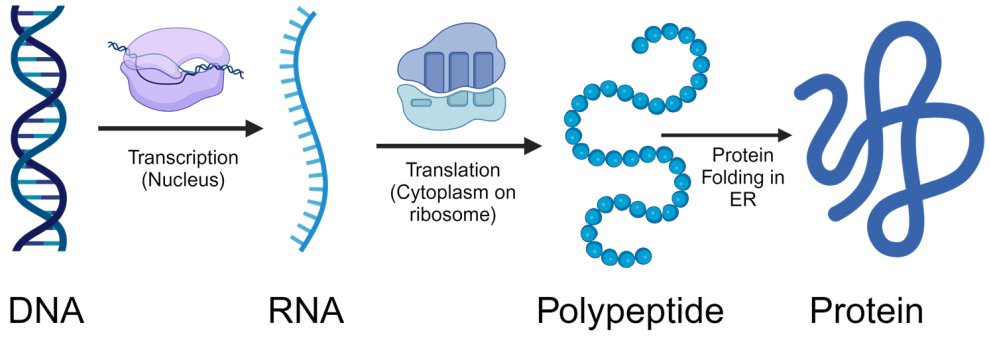
Proteins perform a variety of functions necessary for life. Proteins are made of chains of amino acids, called polypeptides. These polypeptides are folded and sometimes linked to form complex protein structures. Some example of proteins include:

1. Structural proteins like **actin** help to build the cytoskeleton.
2. Enzymes like **DNA polymerase** help to facilitate chemical reactions which allows life to proceed.
3. Transporter proteins like **hemoglobin** help molecules move around the cells and the body.
4. Cell signaling proteins such as **G protein-coupled receptors** help to send and receive signals around the cells.
5. Immune system proteins like **antibodies** help to defend our bodies and cells from pathogens.

This activity will require you to transcribe DNA codons into RNA codons. Then, you will translate RNA codons into amino acids.

Example:

DNA Codon= TCA RNA Codon=AGU Amino Acid=Serine



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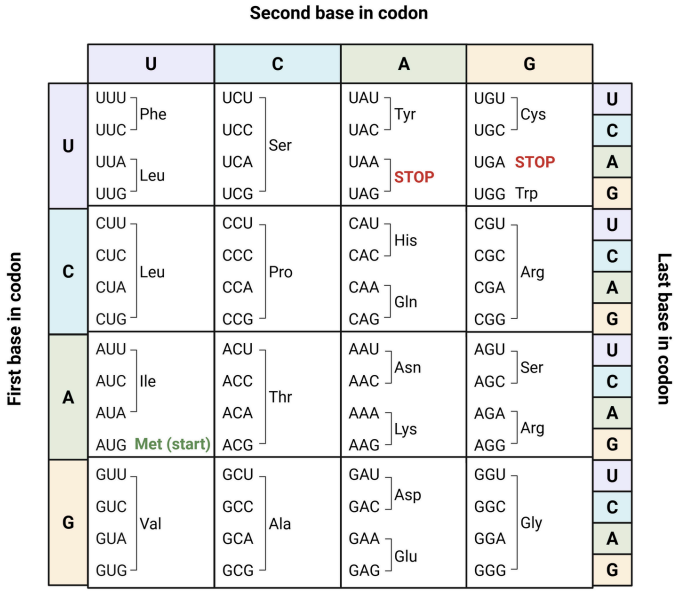
Protein Looping Activity

Name:_____

DNA Codon	RNA Codon	Amino Acid

1. Pick one poster to start and write the DNA codon in the first box in the table to the left.
2. Figure out the RNA codon that corresponds to this codon. Remember that RNA has Uracil instead of Thymine.
3. Use the codon box to figure out the amino acid that goes with the RNA codon.
4. Go find the poster that has that RNA codon or amino acid and record the DNA codon listed below it.
5. Start the process again until you are finished.
6. Record the correct order of amino acids, starting with the starting amino acid of methionine and ending with a stop codon.



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Amino acid correct order:

___ ___ ___ ___ ___ ___ ___ ___ ___ ___ ___ ___ ___ ___

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