

The sequence below is one strand of a DNA double helix from a *prokaryote*.

5'-tctactatatttcaatattcctaggaggttgacctatgattgaacttgaaacgttgcctaataccatggtccgcgtataaccagccgccagttccgctggcggcattttaac-3'

- Write out the complementary strand of DNA below the strand shown above and be sure to label the 5' and 3' ends of the complementary strand.
- The grey boxes are highlighting special sequences that occur in a gene. Label the boxes with the special names given to these sequences.
- Using the complementary strand that you drew as the template for transcription, write the sequence of the mRNA that would be transcribed from this gene in the space below. You will need to figure out where transcription starts and stops. Be sure to label your mRNA sequence at the 5' and 3' ends.

- What will be the amino acid sequence of the protein made from this mRNA? Use the genetic code handout to translate the codons in the mRNA to the amino acid sequence. Write the amino acid sequence from the N-terminus to the C-terminus and label the two ends "N-ter" and "C-ter."