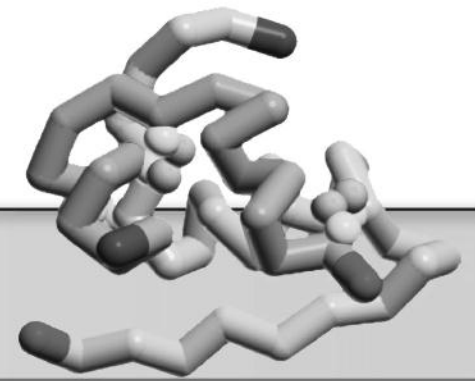
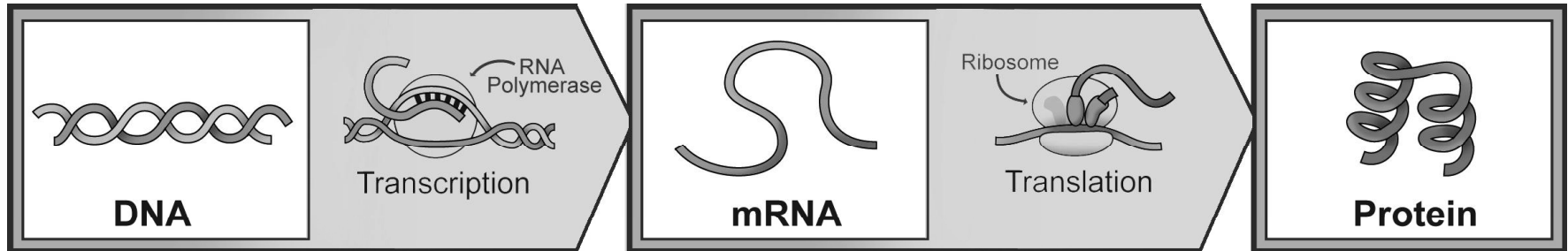




mRNA Coding/Decoding Worksheet

Student Handout

R
G
H
Q
A
D
H
C
P
S
A
M
A
L
W
M
R
L
L
 CCUCUCCCCUCUGCGCGCUCUGCGCCUCUCUGGACCGACCGCCAGCGCAG



The reason we have DNA is to encode the sequence of amino acids that make up proteins. Proteins perform many of the important functions in our bodies.

This worksheet is focused on the coding of mRNA as it is transcribed from one of the two strands that make up double-stranded DNA, and then the decoding of the mRNA into a specific sequence of amino acids in a protein.

Instructions

1. Starting with the mRNA sequence shown on the worksheet, write the nucleotide sequence of the strand of DNA that was used as its template.
2. Starting with the template DNA sequence you wrote in Step 1, write the nucleotide sequence of its complementary (non-template) DNA strand.
3. Returning to the mRNA sequence, write the amino acid sequences that could be decoded from the mRNA by a ribosome translating the mRNA in all three translation reading frames.
4. Remembering that the ribosome initiates translation at the first AUG encountered as it scans 5' to 3' down the mRNA, circle the first seven amino acids that would be translated into the beginning of the protein encoded by this mRNA.

GUGAUGCGCCUCCUGGCCCGUGCGCGUGGCCUUGGGACUGACCAGCCGAC
 C I R R G H Q A D H C P S A M A L W M R L L

[illegible]

5' **G C C A U G G C C C U G U G G A U G C G C C U C C U** → 3'

Ala
A

Pro
P

His
H