

NAME _____ *KEY* _____
DATE _____ CLASS _____

DNA TO RNA HOMEWORK KEY

In this homework assignment you will be required to take the following sequences of DNA and transcribe them into RNA. Remember that RNA polymerase reads in the 3' to 5' direction only and always transcribes (or writes) the new chain in the 5' to 3' direction. Remember that DNA contains A, T, C, G while RNA has A, U, C, G. Uracil replaces thymine, but when copying the following strands of DNA, one must match T in the DNA with A in the RNA and A in the DNA with U in the RNA. In addition, the RNA polymerase only makes a copy of one of the two DNA strands. It determines which strand to copy by locating the promoter at the beginning of the sequence.

1. 5'-CGCCTTGAGCTAGTAGGCTAGCTAGTCCGA-3' Promoter
3'-GCGGAACTCGATCATCCGATCGATCAGGCT-5'

**answer: The RNA polymerase reads the top strand to form:
3'-GCGGAAACUCGAUCATCCGAUCGAUCAGGCU -5'*

2. Promoter 5'-AGGTTACGTTTTACGAGACCGACGTAGCCGTT-3'
3'-TCCAATGCAAAATGCTCTGGCTGCATCGGCAA-5'

**answer: The RNA polymerase reads the bottom strand to form:
5'-AGGUUACGUUUUACGAGACCGACGUAGCCGUU -3'*

3. Promoter 5'-TCGCGCTGGCTACGATATATCAGAGCTAT-3'
3'-AGCGCGACCGATGCTATATAGTCTCGATA-5'

**answer: The RNA polymerase reads the bottom strand to form:
5'-UCGCGCUGGCUACGAUAUAUCAGAGCUAU -3'*