

Transcription and Translation Worksheet

Name Key

Hour _____ Date _____

For each of the following sequences, fill in either the DNA, the mRNA sequence, the tRNA anticodons, or the amino acid sequences that have been left blank. If several sequences might work choose any one.

1. DNA T A C T G A T C G A C C C C C C A T A A T G A A A A T C
 mRNA A U G A C U A G C U G G G G G U A U U A C U U U U A G
 tRNA U A C U G A U C G A C C C C A U A A U G A A A A U C
 AA Met Thr Ser Trp Gly Tyr Tyr Phe (Stop)

2. DNA T A C C G C T C C G C C G T C G A C A A T A C C A C T
 mRNA A U G G C G A G G C G G C A G C U G U U A U G G U G A
 tRNA U A C C G C U C C G C C G U C G A C A A U A C C A C U
 AA Met Ala Arg Arg Glu Leu Leu Tyr (Stop)

3. DNA T A C C A C C C C C G T A T G G C T G G G A A T A T C
 mRNA A U G G U G G G G G C A U A C C G A C C C U U A U A G
 tRNA U A C C A C C C C C G U A U G G C U G G G A A U A U C
 AA Met Val Gly Ala Tyr Arg Pro Leu (Stop)

4. DNA T A C G C C C C T A A A A A T A C C A T C C C A C T
 mRNA A U G C G G G G A U U U U U U A U G G U A G G G U G A
 tRNA U A C G C C C C U A A A A A U A C C A U C C C A C U
 AA MET ARG GLY PHE PHE MET VAL GLY (STOP)

Any that work

5. DNA T A C C T C A C A C T A C G G A T G T T G G G A T T
 mRNA A U G G A G U G U G A U G C C U A C A A C C C U A A
 tRNA U A C C U C A C A C U A C G G A U G U U G G G A U U
 AA Met Glu Cys Asp Ala Tyr Asp PRO (Stop)

6. What are the three differences between RNA and DNA?

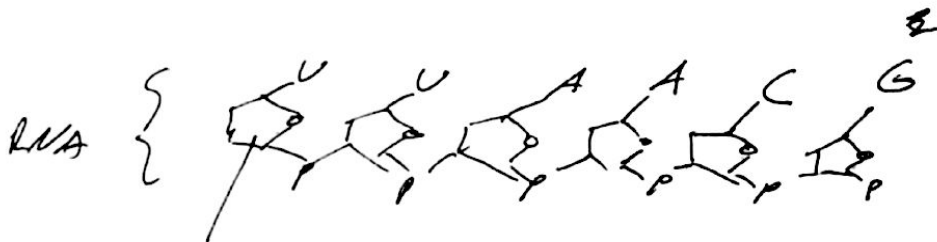
- RNA is single stranded, DNA is double stranded
- RNA uses uracil, DNA uses thymine
- RNA has the sugar ribose, DNA has deoxyribose

7. Where is DNA found in the cell? the nucleus Where is RNA found in the cell? cytoplasm (mostly)

8. Name the three types of RNA and what they do.

- mRNA - carries information from the nucleus to the cytoplasm
- tRNA - changes information from genetic (mRNA) to protein (does stuff)
- rRNA - forms ribosomes, where translation happens

9. Draw an mRNA strand that is complementary to the DNA strand AATTGC. Circle a nucleotide.



10. What are the steps of transcription?

- Initiation: RNA polymerase finds gene and starts building mRNA
- Elongation: RNA pol extends mRNA, using DNA as a template
- Termination: RNA pol leaves DNA & mRNA moves to cytoplasm for translation