

Structure and Function of RNA

1. In what 3 ways does the structure of RNA differ from DNA?

RNA	DNA

2. What are the three types of RNA? Describe the function of each.

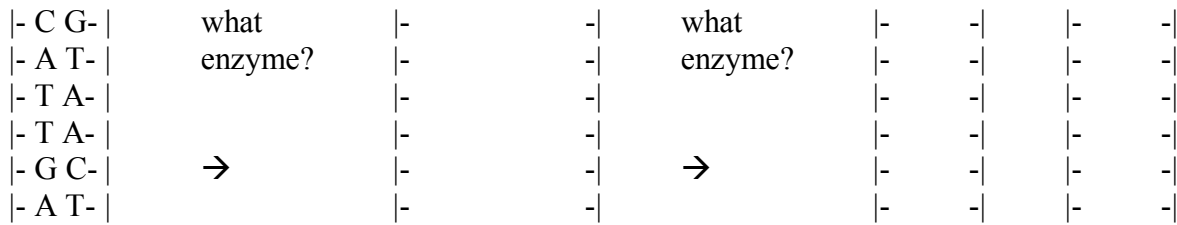
Full Name	Abbreviation	Function

3. What are the 4 nitrogen bases of RNA? (Give the full names.)

Replication of DNA

4. What is replication? Define the process, and include the enzyme(s) needed: _____

5. Diagram the DNA molecule as it undergoes replication. Write in the appropriate enzymes at each step.



Transcription

6. What is transcription? Define the process: _____

7. How is transcription different from replication? _____

Translation

8. What is translation? Describe the process: _____

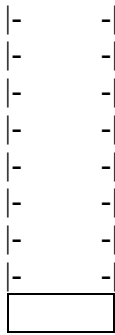
9. What is the monomer of a protein called? _____
10. Distinguish between a codon and an anticodon:
- a. Codon: _____
- b. Anticodon: _____

Putting It All Together

11. Where in the cell do replication, transcription, and translation occur?
- a. Replication _____
- b. Transcription _____
- c. Translation _____

12. Make a DNA molecule that is 9 nucleotides long.

Diagram:



Write down the DNA sequence from the left side of the DNA above. This will be your “gene.”

Transcribe your gene into codons on mRNA. Circle each codon.

Translate the codons—what amino acids do they code for? (Use your book’s genetic code table.)

How many tRNA molecules were needed to carry these amino acids to the ribosome? _____

What were the anticodons on the tRNA molecules that carried those amino acids? Remember, tRNA anticodons are complementary to mRNA codons.
