RNA Structure and Transcription
Protein Synthesis – Part 1
Integrated Science 4

Procedure: Read pages 146-148 in chapter 7 of your Biology textbook (Miller/Levine, 2000). Using these pages and additional resources as needed, answer the questions below. Know underlined terms and ideas.

Background

RNA Structure and Function
1. Describe the general function of RNA (ribonucleic acid).

2. Describe the basic structure of an RNA molecule.

3. List and describe 3 major differences between RNA and DNA.

4. List the 4 possible nitrogen bases that help form a nucleotide in RNA.

5. Describe the location of RNA inside a typical eukaryotic cell.

6. List the 3 major types of RNA.

Transcription: RNA Synthesis
7. State the purpose of transcription.

8. In detail, describe the process of transcription. In your response, describe of the roles of DNA, messenger RNA and RNA polymerase.

9. Explain why it is necessary for DNA to transfer its genetic information to RNA during transcription.

10. Use the following sequence of a template strand of DNA to transcribe a segment of messenger RNA. The letters represent nucleotides.

   DNA Template Strand Sequence: A G G T T C G T A T T C A A
   Complementary mRNA Strand Sequence:
Application – Transcription Diagram Coloring
Color the diagram below. Color each structure and label with a capital letter—A, for example—should be colored the same color. Each different structure and label with a different capital letter should be colored a different color—color labels A, B, C, etc. differently. Do not color titles with stars (★) or dots (•).