EXTENSION: DNA to Protein

Name: _____

Log on to http://learn.genetics.utah.edu/content/begin/dna/ . Use the *DNA to Protein* module to find the answers to the questions below.

Build a DNA Molecule:

1. What are the base pairing rules for DNA?

2. How is DNA replicated?

Transcribe and Translate a Gene:

3. The two-step process by which cells can read a gene and produce a string of amino acids that will eventually become a protein is called

   _____ and _____.

4. How is mRNA different from DNA? (Hint: read the sidebar on this page for help.)

5. What is the correct starting position for translation?

6. Write the amino acids used to assemble your protein in order below.

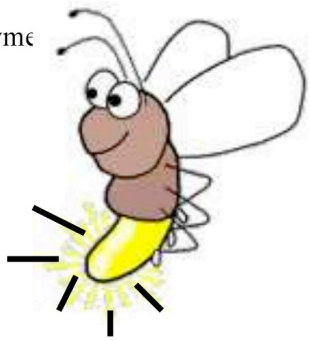
7. Summarize the differences between transcription and translation in the chart:

Process	Beginning Material	Ending Material	Location
Transcription			
Translation			

What Makes a Firefly Glow?

8. Explain in several sentences what makes a firefly glow by using all the terms below:

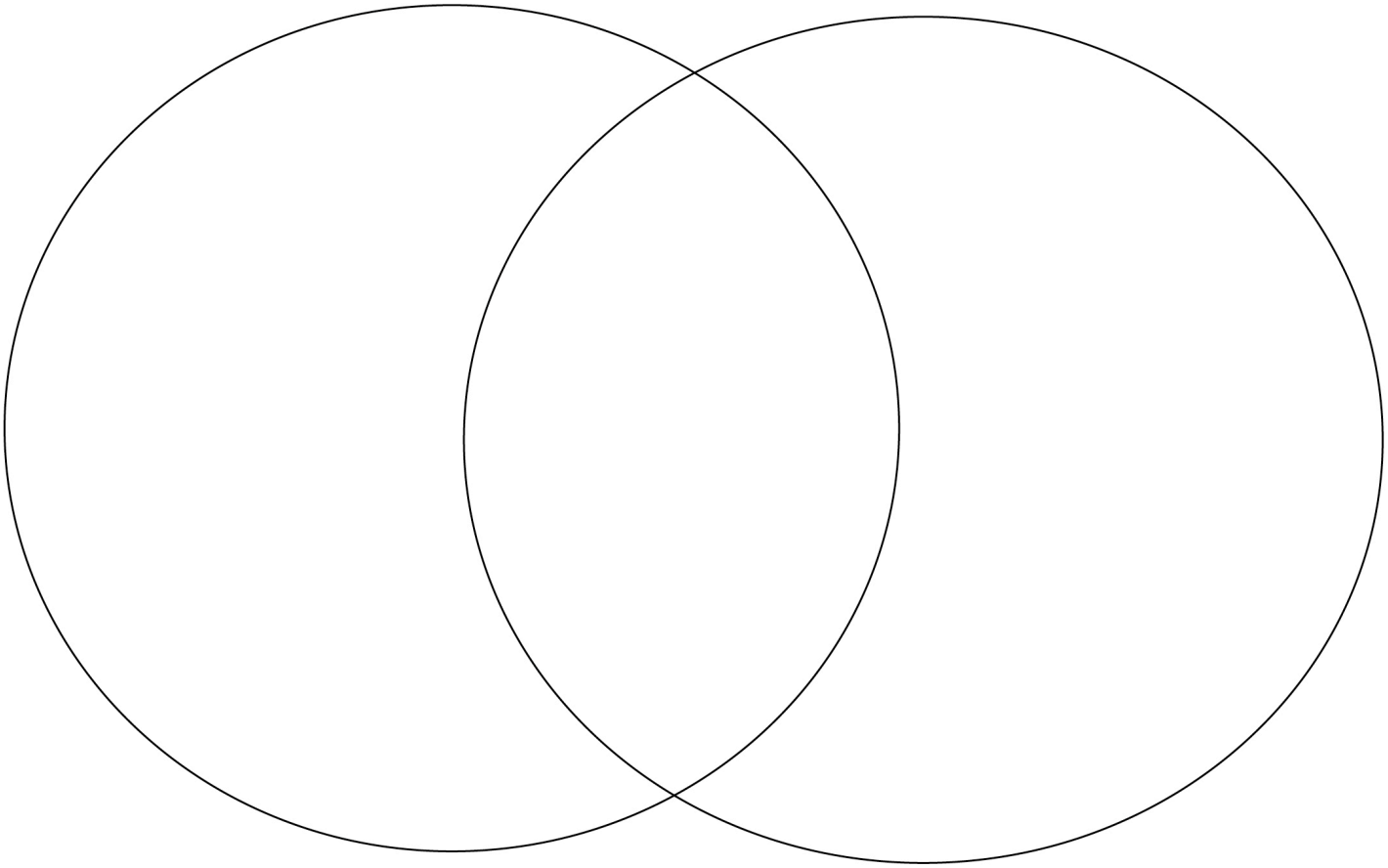
RNA polymerase	LUC gene	Transcription	mRNA
Luciferase enzyme	Ribosome	Translation	Amino Acids
Three dimensional	Luciferin	Oyxluciferin	Functional Luciferase Enzyme



9. Word List

Adenine	Thymine	Covalent Bond	Three types
Guanine	Deoxyribose	Hydrogen Bond	Stays in nucleus
Cytosine	Ribose	Double Helix	Moves all over cell
Uracil	Phosphate	One type	Nucleotides
Stable	Unstable	Triplet	Helicase
Codon	Anticodon	Replication	RNA polymerase

DNA **both** **RNA**



10. Using what you have learned thus far, relate how DNA and RNA's structures allow for the functions of transcription and translation:

	Structure	**Function in transcription/translation**	**How does the structure allow for this?**
DNA			
mRNA			
tRNA			
rRNA			