

Name: _____

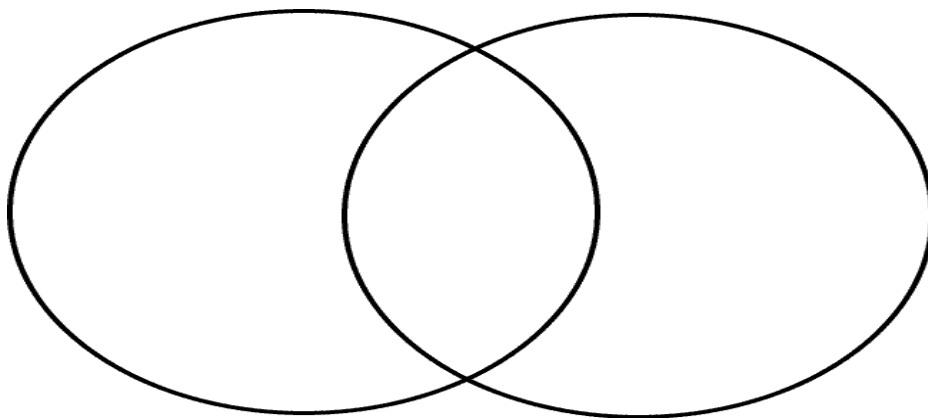
TOC # _____

RNA and Protein Synthesis Worksheet
Use 17-3 in your book to complete with full sentences

1. _____ are coded DNA instructions that control the production of _____ within the cell.

The Structure of RNA

2. Fill in the Venn Diagram comparing and contrasting DNA and RNA



Types of RNA

3. What are the three Types of RNA and what is their role? Looking at figure 12, draw a sketch of each:

A. _____ (___RNA):

B. _____ (___RNA):

C. _____ (___RNA):

Transcription

4. How are RNA molecules produced?
5. What is the key enzyme during transcription?
6. Explain figure 14 in words

RNA Editing

7. What are introns and what are exons?

The Genetic Code

8. How are proteins created?
9. How many amino acids are mathematically possible? How many actually exist? Explain what causes the difference?
10. What is a codon?

Translation

11. Explain the processes of translation in your own words using the text and images on pg. 368-369. Include steps A → D

→

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Understanding How to Express the Genetic Code
DNA → RNA → Amino Acids → Proteins

1. Original Strand of DNA	2. REPLICATION: creating a complimentary strand of DNA	3. TRANSCRIPTION: creating a complimentary strand of mRNA from the <i>ORIGINAL STRAND</i> of DNA	4. TRANSLATION: amino acid encoded for by mRNA codon
T			
A			
C			
A			
A			
C			
G			
G			
T			
C			
T			
C			
A			
G			
C			
A			
C			
G			
A			
T			
T			

First Letter	Second Letter				Third Letter
	U	C	A	G	
U	phenylalanine	serine	tyrosine	cysteine	U
	phenylalanine	serine	tyrosine	cysteine	C
	leucine	serine	stop	stop	A
	leucine	serine	stop	tryptophan	G
C	leucine	proline	histidine	arginine	U
	leucine	proline	histidine	arginine	C
	leucine	proline	glutamine	arginine	A
	leucine	proline	glutamine	arginine	G
A	isoleucine	threonine	asparagine	serine	U
	isoleucine	threonine	asparagine	serine	C
	isoleucine	threonine	lysine	arginine	A
	(start) methionine	threonine	lysine	arginine	G
G	valine	alanine	aspartate	glycine	U
	valine	alanine	aspartate	glycine	C
	valine	alanine	glutamate	glycine	A
	valine	alanine	glutamate	glycine	G