Biologist: _____
Class website: iwillmsu.wordpress.com

Test Date: _____

Unit C: DNA

The capacity to blunder slightly is the real marvel of DNA. Without this special attribute, we would still be anaerobic bacteria and there would be no music. – Lewis Thomas

Make flashcards or use Quizlet to help you learn these Vocabulary Words:			
complementary base pairing	replication	messenger RNA (mRNA)	transfer RNA (tRNA)
DNA helicase	semi-conservative replication	transcription	polypeptide chain
DNA polymerase	amino acid	translation	ribosome
ligase	anti-codon	elongation	genetic disorder
nucleotide	codon	initiation	mutagen
recombinant DNA	DNA sequence (genetic code)	termination	mutation

Learning Goals	**Learning Goals Unpacked in detail**	**Resources You learn….You choose**
C1. I can **describe the structure of DNA** and the **process of DNA replication**	a) Components of a nucleotide b) Levels of organization: • gene < DNA < chromosome c) I know the roles of the enzymes: helicase, polymerase, and ligase	**CREATE NOTES FROM TEXTBOOK:** p. 502 - 506 **MAKE NOTES on VIDEOS & WEBSITES:**
C2. I can **describe the process of protein synthesis.** I can **estimate the products given a section of genetic code.**	a) Transcription vs Translation b) The 3 steps of translation: Initiation, elongation, and termination c) I know the roles of messenger RNA (mRNA), transfer RNA (tRNA), and ribosomal RNA (rRNA) d) I can use a codon table to predict the amino acids produced	**CREATE NOTES FROM TEXTBOOK:** p. 506 - 511 **MAKE NOTES on VIDEOS & WEBSITES:**
C3. I can **describe the effects of** DNA **mutations**	a) Causes of mutations b) Effects on protein activity c) Cancer	**CREATE NOTES FROM TEXTBOOK:** p. 515 - 520 **MAKE NOTES on VIDEOS & WEBSITES:**
C4. I can **explain the importance of genomics** to biotechnology and **describe types of biotechnology**	a) Gene vs genome b) Gene Therapy a) Cloning b) Recombinant DNA	**CREATE NOTES FROM TEXTBOOK:** p. 523 - 536 **MAKE NOTES on VIDEOS & WEBSITES:**

you also have a codon table in your **textbook section 25.3**

Codon Table

1st base	2nd base: U		2nd base: C		2nd base: A		2nd base: G		3rd base
U	UUU	Phenylalanine	UCU	Serine	UAU	Tyrosine	UGU	Cysteine	U
	UUC	Phenylalanine	UCC	Serine	UAC	Tyrosine	UGC	Cysteine	C
	UUA	Leucine	UCA	Serine	UAA	Stop	UGA	Stop	A
	UUG	Leucine	UCG	Serine	UAG	Stop	UGG	Tryptophan	G
C	CUU	Leucine	CCU	Proline	CAU	Histidine	CGU	Arginine	U
	CUC	Leucine	CCC	Proline	CAC	Histidine	CGC	Arginine	C
	CUA	Leucine	CCA	Proline	CAA	Glutamine	CGA	Arginine	A
	CUG	Leucine	CCG	Proline	CAG	Glutamine	CGG	Arginine	G
A	AUU	Isoleucine	ACU	Threonine	AAU	Asparagine	AGU	Serine	U
	AUC	Isoleucine	ACC	Threonine	AAC	Asparagine	AGC	Serine	C
	AUA	Isoleucine	ACA	Threonine	AAA	Lysine	AGA	Arginine	A
	AUG	Methionine (Start)	ACG	Threonine	AAG	Lysine	AGG	Arginine	G
G	GUU	Valine	GCU	Alanine	GAU	Aspartic Acid	GGU	Glycine	U
	GUC	Valine	GCC	Alanine	GAC	Aspartic Acid	GGC	Glycine	C
	GUA	Valine	GCA	Alanine	GAA	Glutamic Acid	GGA	Glycine	A
	GUG	Valine	GCG	Alanine	GAG	Glutamic Acid	GGG	Glycine	G