Name_____Date_____Period_____

DNA/RNA Study Guide

Fill in the Blank

1. _____ DNA and RNA are both types of
2. _____ The shape of DNA in all organisms when stretched out
3. _____ The shape of DNA in prokaryotes
4. _____ The building block of DNA
5. _____ When DNA replication happens
6. _____ Bond that holds the two strands of DNA together
7. _____ Organelle where transcription happens
8. _____ Organelle where translation happens
9. _____ Sugar in DNA
10. _____ Sugar in RNA
11. _____ Type of RNA that ribosomes are made of
12. _____ Bond that hooks amino acids together to make a protein

Word Bank

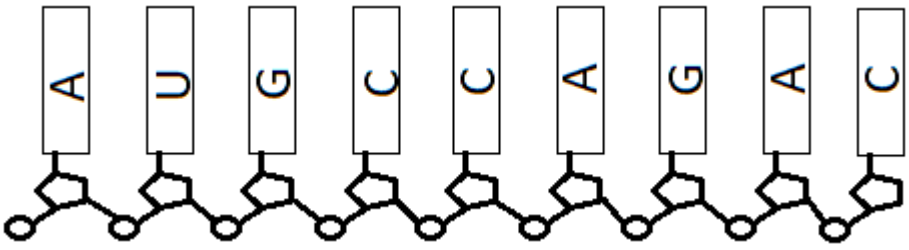
Before a cell divides	Double helix	Ribosome	Nucleotide
Circular	Hydrogen bond	rRNA	Nucleus
Deoxyribose	Ribose	Nucleic acid	Peptide bond

Check the Box

For each characteristic, check which box the characteristic describes- DNA or RNA. You may need to check both!

DNA	Characteristic	RNA
	Has deoxyribose	
	Has ribose	
	Single-stranded	
	Double-stranded	
	Can leave nucleus	
	Stays in nucleus	
	Has phosphates	
	Has Adenine (A)	
	Has Guanine (G)	
	Has Cytosine (C)	
	Has Thymine (T)	
	Has Uracil (U)	

13. Circle the three codons on the mRNA below. Above each codon, write down the corresponding amino acid.

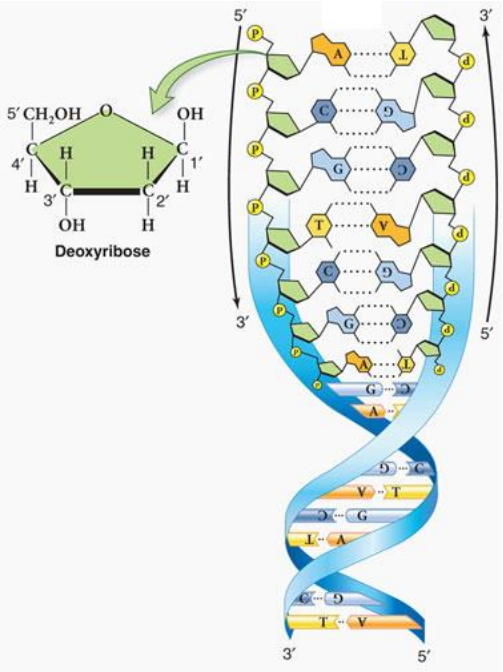


14. What is the difference between what happens during **transcription** and what happens during **translation**?

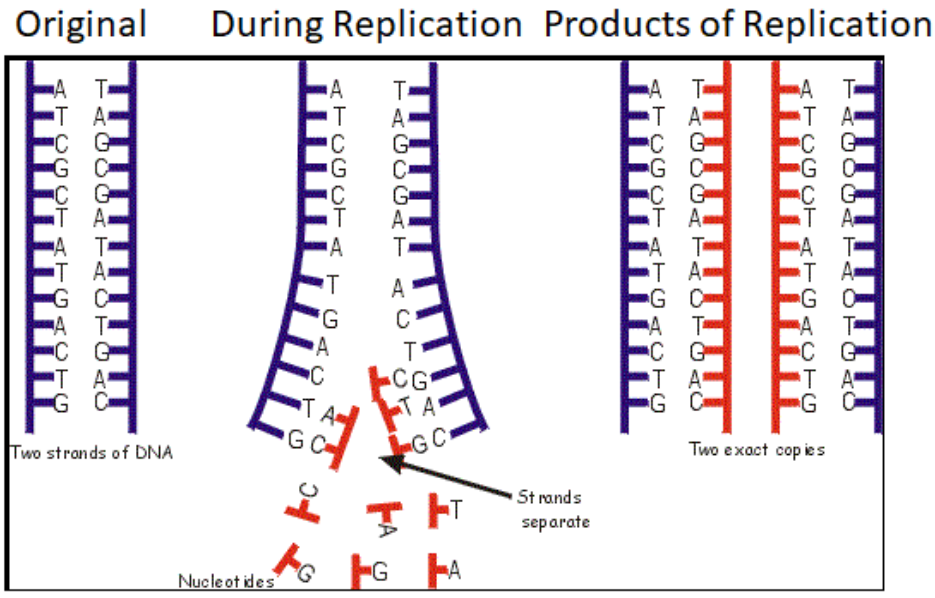
15. Fill in the table to describe the function of each type of RNA.

	Function
mRNA	
rRNA	
tRNA	

16. Give me THREE reasons you can tell the molecule below is DNA, not RNA.

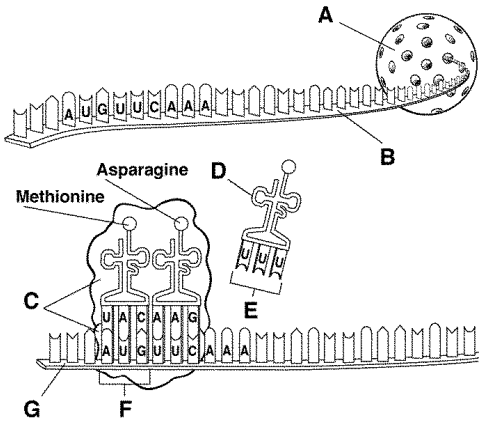


17. The image below illustrates what is produced during DNA replication. Under "Products of Replication," label the **<u>old strands</u>** and the **<u>new strands</u>**.



18. What is the difference between an **anticodon** and a **codon**?

19. Label the following in the figure below: anticodon, nucleus, tRNA, ribosome, mRNA (use twice), codon.



20. What is a **mutagen**? Give three examples of mutagens.

21. Write down the strand of **DNA** that is complementary to this **DNA** strand: CTG-AAA-GTC

22. **Transcribe** this strand of **DNA**: ACG-TAC-GTC (just give me the mRNA!)

23. **Translate** this strand of **DNA**: TAT-CAT-AAG (give me both the mRNA and the amino acids!)

24. **Translate** this strand of **mRNA**: CUA-GAC-UGG (give me the amino acids)

25. **Transcribe** this strand of **DNA**: GCG-GAC-GCA (just give me the mRNA!)

26. What amino acid sequence will be made if the **tRNA** sequence is: AUG-GAC-UUA

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