DNA Structure, DNA Replication, and Protein Synthesis Review

1. A nucleotide is made of three parts: a _____ group, a five carbon _____, and a nitrogen containing _____

2. In a single strand of DNA, the phosphate group binds to the _____ of the next group.

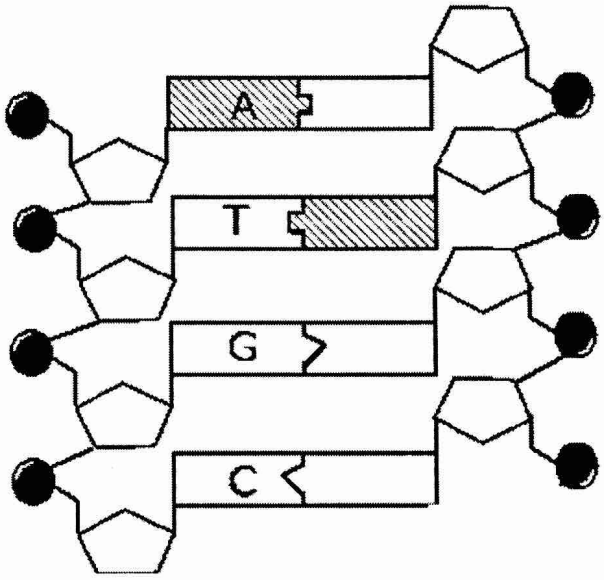
3. ~~The 5' end of a single DNA strand contains a free _____, while the 3' end contains a free _____.~~

4. Purines have _____ rings, and pyrimidines have _____ ring.

5. Write out the complete name for DNA: _____

On the diagram:

- ~~Label the 3' and 5' ends.~~
- Circle a nucleotide.
- Label the sugar and phosphate.
- Label the bases that are not already labeled.



6. The two sides of the DNA helix are held together by _____.

7. The purines are _____ and _____; the pyrimdines are _____ and _____.

8. The term used to describe how the two strands of DNA are oriented is _____, which means _____.

9. In a strand of DNA, the percentage of thymine is 30 %. What is the percentage of cytosine? _____ Adenine? _____ Thymine? _____

Sentence Arrange – Put the steps of DNA replication in order by writing a number in the space before each statement.

_____ Two new molecules of DNA are created.
_____ DNA polymerase attach the free-floating nucleotides to the exposed nitrogen bases.
_____ Helicase begins to break the hydrogen bonds between nitrogen bases.
_____ Cell starts into the mitosis phase of the cell cycle.
_____ Free floating nucleotides pair up with exposed nitrogen bases.

DNA Replication

DIRECTIONS. Answer the following questions about DNA replication

1. Why does DNA replicate?

2. Is DNA replication describe as conservative or semi-conservative? Why?

3. What 2 enzymes are used during DNA replication? Describe what each does during replication.

4. When does DNA replication occur in a cell?

5. Where does DNA replication occur in a cell?

6. Show the complimentary base pairing that would occur in the replication of the short DNA molecule below. Use two different colored pencils (or different pens, markers, etc.) to show which strands are the original and which are newly synthesized.

Original DNA Strand 1	Original DNA Strand 2	→	Original DNA Strand 1 (copy from left)	New DNA Strand	+	New DNA Strand	Original DNA Strand 2 (copy from left)
A -	T	→			+		
C -	G	→			+		
T -	A	→			+		
T -	A	→			+		
A -	T	→			+		
C -	G	→			+		
G -	C	→			+		
C -	G	→			+		
C -	G	→			+		
G -	C	→			+		
A -	T	→			+		
T -	A	→			+		

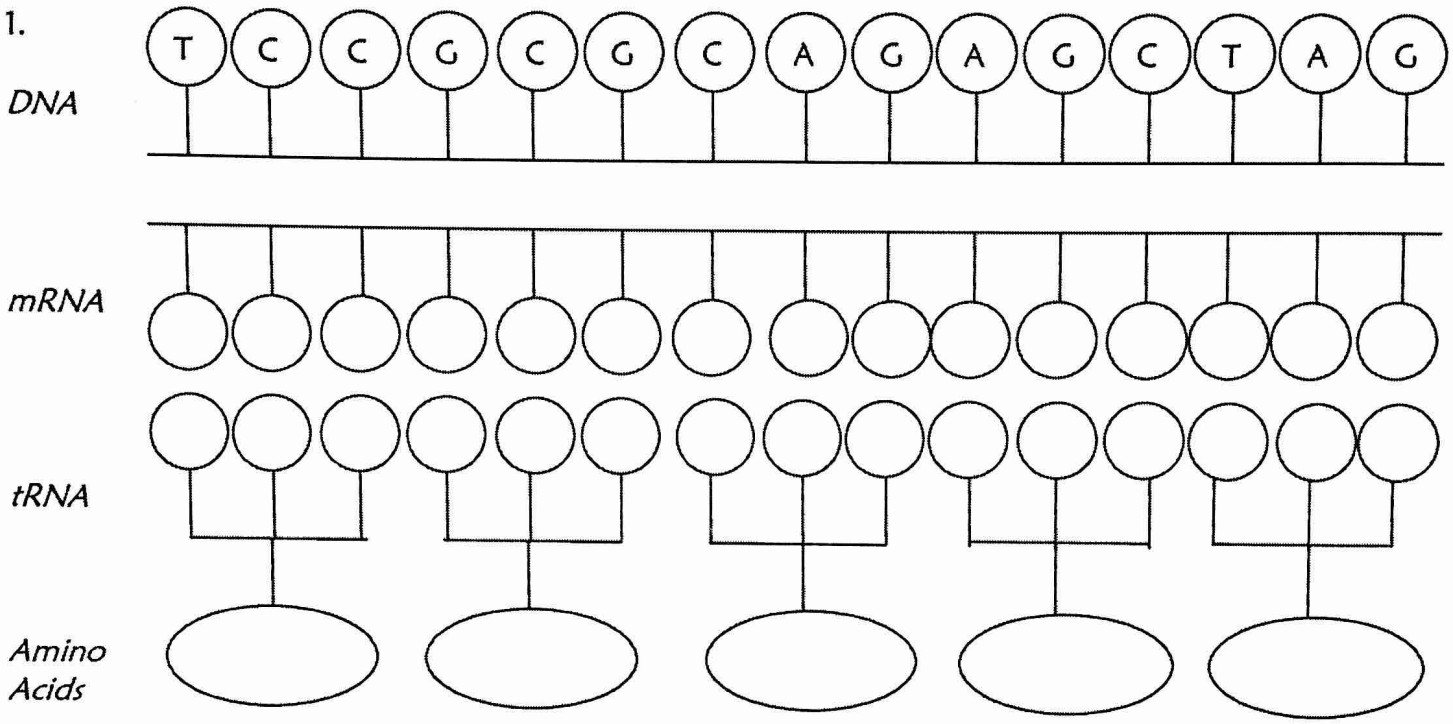
Protein Synthesis Worksheet

Day: _____ Name: _____

Directions:

1. Use the DNA code to create your mRNA code.
2. Use the mRNA code to create your tRNA code.
3. Use the mRNA code and the Genetic Code to determine your amino acids.
4. Answer any questions by circling the correct underlined answer.

1.



2. mRNA is made during (transcription/translation).

3. mRNA is made in the (cytoplasm/nucleus).

4.