Name: Period: Date:

**DNA STUDY GUIDE**

1. **** What type of molecule is this?

1. What is structure X called?

1. What three things make up the answer to number 2?

1. Watson and Crick described this structure as a:

1. Where is DNA located in a eukaryotic cell?

1. What molecules make up the backbone of a DNA molecule?

1. What molecules make up the rungs of a DNA molecule?

1. What are the complementary base pairs? (Which base pairs with which?)

1. ****Label the sugar molecules, the phosphate molecules, and the bases in the above diagram. Cricle and label a codon. Circle and label a nucleotide.
2. In what process is DNA copied?

1. During DNA replication, a DNA strand that has the bases TAGCAT produces a

 strand with the bases:

1. What is the same between a DNA nucleotide and an RNA nucleotide?

1. What is different between a DNA nucleotide and an RNA nucleotide?

1. RNA contains the sugar \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, while DNA contains the sugar \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. How many types of RNA are there?

1. Name and provide the function (job) of each:

****

1. What is produced during transcription?
2. Where does this process occur?

1. What is a codon?

1. What does a codon code for?

** IDENTIFY THE AMINO ACID USING THE CODON CHART**

GUA—

CCC—

AGC—

GAC—

UCA—

1. What is produced in translation?

1. What type of DNA technology has helped forensic scientists to catch criminals?
2. Define the following DNA technologies
* Genetic Engineering
* Cloning
* Recombinant DNA
1. What is a Mutation?

1. What are some examples of mutagens?

 **DEFINE**

1. A DNA segment is changed from TAGCAT to TACCAT. –What type of gene mutation is this?

1. A DNA segment is changed from TAGCAT to TACAT.-What type of gene mutation is this?

1. A DNA segment is changed from TAGCAT to TAGACAT. –What type of gene mutation is this?

**PRACTICE**

For each of the following, transcribe the DNA to mRNA, then translate the mRNA to Amino Acids.

DNA Sequence:

1. DNA: ATG AAA AAC AAG GTA CAC ATC TAG

 mRNA:

 amino Acids:

1. DNA: ATG AAA AAC AAT TGC ACG TAG

 mRNA:

 amino Acids:

1. DNA: ATG TAA ACC ACA CTA CAT AGT

 mRNA:

 amino Acids:

For each of the following sequences, fill in either the DNA, the mRNA sequence, , or the amino acid sequences that have been left blank. If several sequences might work choose any one.

1. DNA T A C C G C T C C G C C G T C G A C A A T A C C A C T

 mRNA \_

 AA \_

1. DNA \_\_\_

mRNA A U G A C U A G C U G G G G G U A U U A C U U U U A G

AA \_\_\_

1. DNA \_\_

mRNA U A C C A C C C C C G U A U G G C U G G G A A U A U C

AA \_\_

1. DNA

mRNA

AA MET ARG GLY PHE PHE MET VAL GLY (STOP)