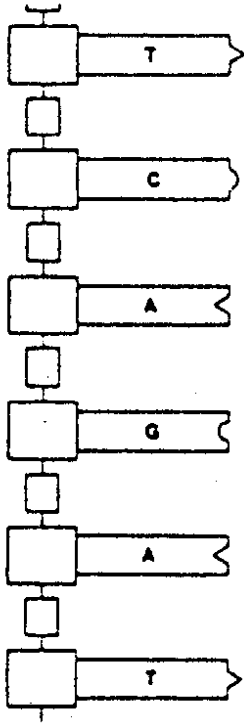


Name: \_\_\_\_\_



Use the diagram to answer the statements.  
Write the correct letter on the line.

- \_\_\_\_ 1. The diagram represents a portion of a(n) \_\_\_\_\_ molecule.  
a. RNA    b. DNA    c. acid    d. protein.
- \_\_\_\_ 2. The lettered parts of the diagram represent  
a. nitrogen bases.    b. acids.    c. sugars.    d. proteins.
- \_\_\_\_ 3. The large squares represent  
a. bases.    b. acids.    c. sugars.    d. proteins.
- \_\_\_\_ 4. The correct order of lettered parts in the missing half of this molecule from top to bottom, is  
a. TAGACT.    b. AGTCTA.    c. TCAGAT.    d. GACTCG.
- \_\_\_\_ 5. The sides of the DNA ladder are made up of  
a. nitrogen bases.    b. acids and sugars.  
c. sugars only.    d. proteins.

On the line to the left, write TRUE if the statement is true or FALSE if the statement is false.

- \_\_\_\_ 6. DNA is found in the cytoplasm.
- \_\_\_\_ 7. The chemical that controls traits is RNA.
- \_\_\_\_ 8. DNA is copied exactly when new chromosomes form during mitosis.
- \_\_\_\_ 9. Mutations can cause harmful traits to appear.
- \_\_\_\_ 10. A identical twin is a clone.
- \_\_\_\_ 11. Mutations may be caused by certain chemicals and radiation.

Match the items on the right with the phrases on the left. Write the correct letter on the line.

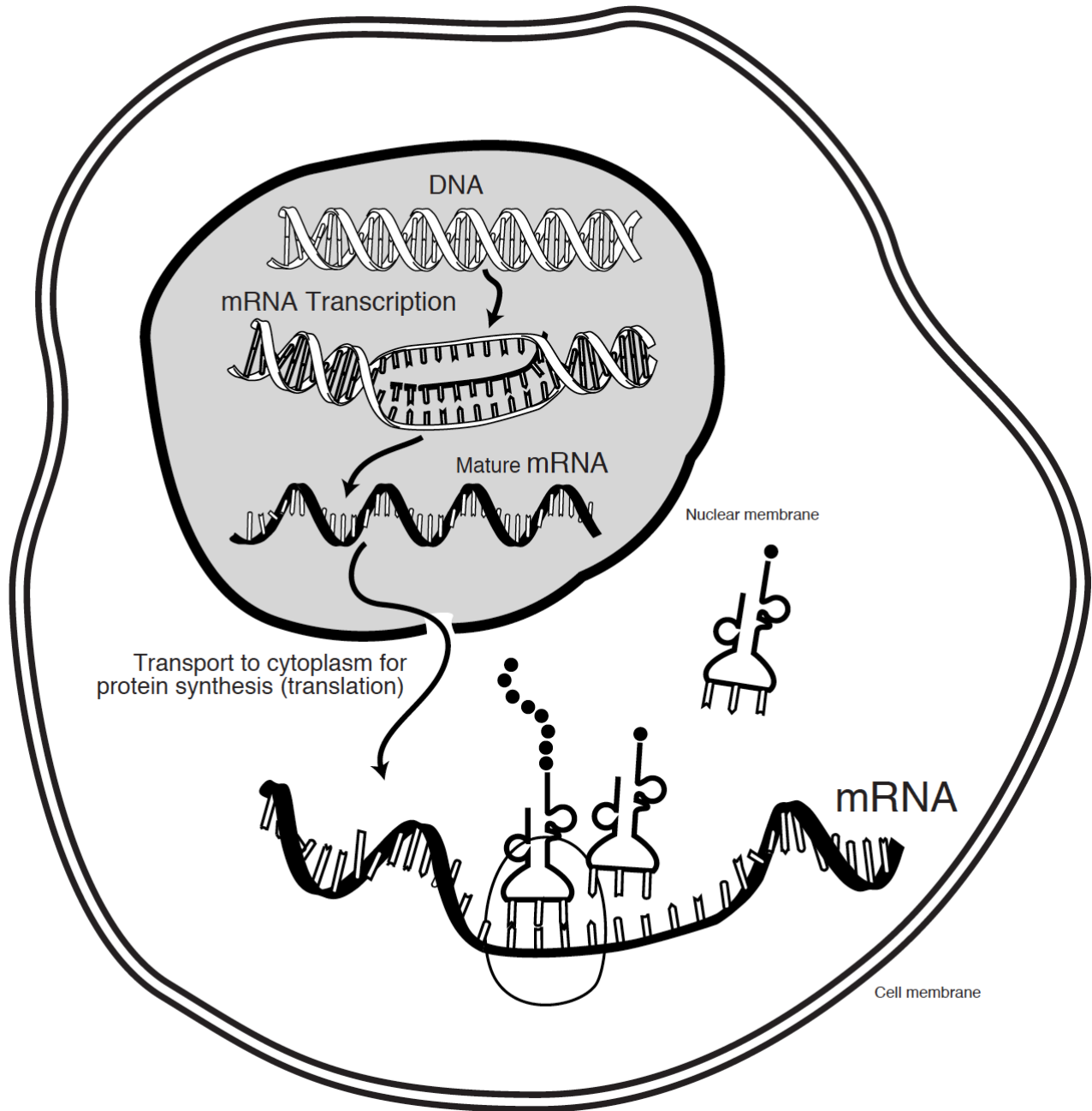
- |  |              |
|--|--------------|
| ____ 12. a chemical that acts as a messenger for DNA | A. clone     |
| ____ 13. a change in the DNA code                    | B. mutation  |
| ____ 14. mating two living things                    | C. gene      |
| ____ 15. Making an exact copy of a living thing      | D. RNA       |
| ____ 16. formed from the same fertilized egg         | E. breeding  |
|  | F. identical |

Name: \_\_\_\_\_

On the line to the left, write the letter of the choice that correctly completes the statement.

- \_\_\_\_\_ 17. The shape of a DNA molecule is  
a. straight                      b. circular                      c. flat                      d. double spiral
- \_\_\_\_\_ 18. DNA makes up parts of  
a. proteins                      b. chromosomes                      c. sugars                      d. amino acids
- \_\_\_\_\_ 19. The DNA message depends on the order of the  
a. nitrogen bases                      b. acids                      c. sugars                      d. genes
- \_\_\_\_\_ 20. Besides the nitrogen bases, DNA contains sugar and  
a. acid                      b. protein                      c. RNA                      d. fat
- \_\_\_\_\_ 21. DNA forms the code for the making of  
a. proteins                      b. genes                      c. fats                      d. chromosomes
- \_\_\_\_\_ 22. \_\_\_\_\_ are cell parts where proteins are made.  
a. Mitochondria                      b. Ribosomes                      c. Nuclei                      d. Chromosomes
- \_\_\_\_\_ 23. If a change is made when DNA copies itself, a \_\_\_\_\_ results.  
a. clone                      b. death                      c. mutation                      d. base
- \_\_\_\_\_ 24. A short section of DNA that codes for a trait is a  
a. protein                      b. sugar                      c. chromosome                      d. gene
- \_\_\_\_\_ 25. The messages of the genes of chromosomes are carried to ribosomes by  
a. DNA                      b. protein                      c. RNA.                      d. acid
- \_\_\_\_\_ 26. The DNA in identical twins is  
a. different                      b. the same                      c. opposite
- \_\_\_\_\_ 27. A section of DNA with bases ATTTCGC will line up with bases  
a. TAAGGC                      b. ATTTCGC                      c. TAAGCG                      d. TAAGCC
- \_\_\_\_\_ 28. When twins have the same DNA, they are  
a. fraternal                      b. clones                      c. identical                      d. b and c

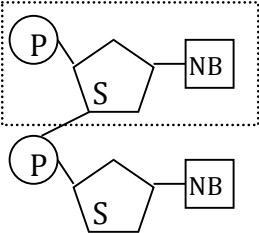
Name: \_\_\_\_\_



Label the diagram above with the following words:

- a. mRNA      b. tRNA      c. Amino Acids      d. Protein      e. Ribosome

## DNA, RNA & Protein Synthesis

<p style="text-align: center;"><b>DNA</b></p> <p>Deoxyribonucleic Acid Is a polymer constructed from four nucleotides containing:</p> <ol style="list-style-type: none"> <li>1. (A)</li> <li>2. (T)</li> <li>3. (C)</li> <li>4. (G)</li> </ol> <p>The molecule takes on a ladder like shape called the _____ with the nitrogenous bases to the inside and the sugar phosphate backbone to the outside. DNA is found in the _____ of Eukaryotic cells. It is responsible for storing the genetic information of every organism.</p>	<p style="text-align: center;"><b>Nucleotide</b></p> <p>Building block of DNA and RNA</p> <div style="display: flex; align-items: center;">  <div style="margin-left: 10px;"> <p>Constructed from Ribose sugar and a phosphate group bonded to a nitrogenous base.</p> </div> </div>	<p style="text-align: center;"><b>Translation</b></p> <p>The process that uses RNA and the ribosomes to synthesize polypeptides (proteins).</p>
<p style="text-align: center;"><b>Chromosome</b></p> <p>When DNA is condensed around proteins called histones it forms an easy to move structure called a chromosome. A human has 23 pairs of chromosomes (46 total)</p>	<p style="text-align: center;"><b>Replication</b></p> <p>The cellular process by which DNA is copied in preparation for cell division.</p> <ol style="list-style-type: none"> <li>1.</li> <li>2.</li> <li>3.</li> </ol>	<p>mRNA travels to the ribosome where its bases are read in groups of three called <b>codons</b> or triplets.</p> <p>tRNA arrives at the ribosome with matching <b>anticodons</b> to bring amino acids to the ribosome where they are bonded to the next amino acid.</p>
<p><b>Polymers</b> are molecules made up of repeating subunits. The order of the subunits determines the meaning of the polymer.</p> <p><b>DNA/RNA</b> are polymers made up of Nucleic acids</p> <p><b>Proteins</b> are polymers made up of amino acids</p>	<p style="text-align: center;"><b>Gene</b></p>	<p>The chain of amino acids will continue to grow until the stop codon is reached. Then the chain is released and finished in the ER.</p>
<p><b>Polymers</b> are molecules made up of repeating subunits. The order of the subunits determines the meaning of the polymer.</p> <p><b>DNA/RNA</b> are polymers made up of Nucleic acids</p> <p><b>Proteins</b> are polymers made up of amino acids</p>	<p style="text-align: center;"><b>RNA</b></p> <p>Ribonucleic Acid is a single stranded polymer used to transmit the information from the DNA in the nucleus to the ribosomes in the cytoplasm. It exits the nucleus by way of the nuclear pores.</p> <p>There are three kinds of RNA</p> <p><b>mRNA-</b></p> <p><b>tRNA-</b></p> <p><b>rRNA-</b></p>	<p>Each tRNA has one of 64 possible anticodons however because there are only 20 amino acids some codons code for the same amino acids.</p>
<p style="text-align: center;"><b>DNA Base Pairing Rule</b></p> <p style="text-align: center;">A-T                      C-G</p>	<p style="text-align: center;"><b>Transcription</b></p> <p>The process that creates RNA using the coding strand of DNA as a template. RNA Polymerase assembles the RNA using the following substitution rules:</p> <p style="text-align: center;">A→Uracil, T→     , C→     , G→     </p>	