Gene Expression

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

1. What does DNA stand for\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. What does RNA Stand for\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. DNA & RNA are both class of which type of organic molecules?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
4. What is the “language” (monomer) of DNA & RNA\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
5. Label the following parts of the nucleotides:

*5’ end or 3’ end, Nitrogenous base (NB), Phosphate Group (P), Deoxyribose or Ribose,*

*purine or pyrimidine*

Guanine

OH

Guanine

OH

OH

Thymine

OH

Cytosine

OH

Adenine

OH

Uracil

OH

OH

1. How many nucleotides are depicted?\_\_\_\_\_\_\_\_\_
2. How many of the above nucleotides could be used to make a molecule of DNA?\_\_\_\_\_\_
3. How many of the above nucleotides could be used to make a molecule of RNA?\_\_\_\_\_\_\_
4. What is the main difference between the 2 nucleotides with the nitrogenous base Guanine attached?
5. Based on the shape, would you consider Uracil to be a purine or a pyrimidine?
6. What enzyme is responsible for separating strands of DNA in the process of replication?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
7. What enzyme is responsible for linking nucleotides together to build a new strand of **DNA**?
8. What enzyme is responsible for linking nucleotides together to build a new strand of **RNA**?
9. The enzyme mentioned in numbers 12 & 13 can only add new nucleotides to which end, the 3’ end or the 5’ end?
10. Fill in the diagram with the following terms
    1. Replication
    2. DNA
    3. Protein
    4. Transcription
    5. Translation
    6. RNA
11. What kind of bonds holds 2 nitrogen bases together?
12. How many of these bonds form between Adenine and Thymine?
13. How many of these bonds form between Cytosine and Guanine?
14. If a strand of DNA has the following sequence, what will be the sequence of the 2nd strand?

ATTCGCTAGCTAGCTACCGTCA

1. If a strand of DNA has the following sequence, what will be the sequence of the **RNA** strand?

ATTCGCTAGCTAGCTACCGTCA