

“Biology has at least 50 more interesting years.” James Watson

DNA Structure & intro to Replication Worksheet Name: \_\_\_\_\_

In 1953, James Watson and Francis Crick established the structure of DNA. The structure is a double helix, which is like a twisted ladder. The sides of the ladder are made of alternating sugar and phosphate molecules. The sugar is deoxyribose. Color all the phosphates pink (one is labeled with a "p"). Color all the deoxyriboses blue (one is labeled with a "D") .

The rungs of the ladder are pairs of 4 types of nitrogen bases. Two of the bases are purines - adenine and guanine. The pyrimidines are thymine and cytosine. The bases are known by their coded letters A, G, T, C. These bases always bond in a certain way. Adenine will only bond to thymine. Guanine will only bond with cytosine. This is known as the "Base-Pair Rule". The bases can occur in any order along a strand of

#### PART A

Complete the following strand of DNA by placing the letter of the correct nitrogenous base on the line provided

5' C C A G T A G T T 3'

\_\_\_\_\_

If the DNA molecule above were the parent strand of DNA, when the strands are split for replication, which strand would be the template for the leading strand? Why?

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

#### PART B

Why does DNA need to replicate?

\_\_\_\_\_  
\_\_\_\_\_