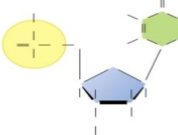


Name \_\_\_\_\_

Date \_\_\_\_\_

Period \_\_\_\_\_

DNA & Replication Worksheet

1. Write out the complete name for DNA: \_\_\_\_\_
2. A nucleotide is made of three parts: a \_\_\_\_\_ group, a five carbon \_\_\_\_\_, and a nitrogen containing \_\_\_\_\_. Label these three parts on the diagram to the right:  

3. In a single strand of DNA, the phosphate group binds to the \_\_\_\_\_ of the next group.
4. The 5' end of a single DNA strand contains a free \_\_\_\_\_, while the 3' end contains a free \_\_\_\_\_.
5. DNA was not thought to be the genetic blueprint originally; instead many scientists hypothesized that \_\_\_\_\_ contained the genetic code and blueprint of life. (They were later proven wrong.)
6. Purines have \_\_\_\_\_ rings, and pyrimidines have \_\_\_\_\_ ring.
7. Check each of the following statements that are true with regard to Griffith's experiments.  
 Griffith discovered transformation in bacteria.  
 Mice injected with non-encapsulated bacteria quickly became sick and died.  
 Encapsulated bacteria can become "naked" bacteria.  
 Bacteria that are naked tend to be harmless.  
 Naked bacteria can develop a capsule only after exposure to the DNA of encapsulated bacteria.  
 Griffith's transforming factor was the protein in the capsule.  
 Heating the encapsulated bacteria preventing transformation of the naked variety.  
 Transformation allows bacteria to acquire new genes.  
 Enzymes that destroyed DNA would prevent transformation.
8. Check each of the following statements that are true with regard to the Hershey-Chase experiment.  
 DNA was labeled with radioactive phosphorous.  
 Protein was not labeled.  
 Radioactive sulfur was found in the offspring phages after they emerged from the cell.  
 Phage proteins were not transmitted to host cell or to offspring.
9. Chargaff's rule states that the DNA of any species contains equal amounts of \_\_\_\_\_ & \_\_\_\_\_ and also equal amounts of \_\_\_\_\_ & \_\_\_\_\_.
10. Wilson and Franklin studied the structure of DNA using \_\_\_\_\_ and determined that the shape of the molecule was a \_\_\_\_\_.
11. James Watson and Francis Crick amended Franklin and Wilson's conclusions and determined that the shape of the molecule was instead a \_\_\_\_\_.
12. Name the scientist(s) responsible for each of the following discoveries.  
\_\_\_\_\_ Bacterial transformation  
\_\_\_\_\_ The base-pair rule  
\_\_\_\_\_ DNA was the hereditary material of viruses  
\_\_\_\_\_ The shape of DNA was a helix  
\_\_\_\_\_ The shape of DNA was a double helix
13. In DNA, thymine is complementary to \_\_\_\_\_; cytosine is complementary to \_\_\_\_\_.