Name _____ Date _____ Period _____

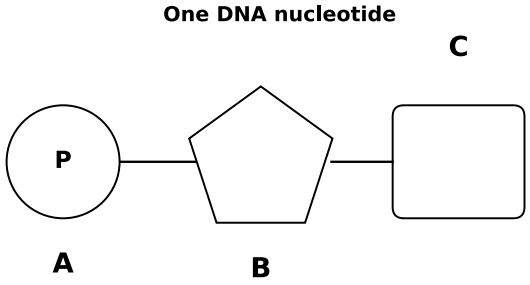
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Nucleotides and Base Pairing

Biology

Directions: Answer each question in the space provided. Show your work for every calculation. For Claim, Evidence, Reasoning (CER) questions, write all three parts.

1. Label the parts of the DNA nucleotide.



A: _____ B: _____ C: _____

2. Complete the table.

Base	Purine or pyrimidine?	Pairs with	Hydrogen bonds in the pair
Adenine (A)			
Thymine (T)			
Guanine (G)			
Cytosine (C)			

3. Write the complementary DNA strand for GCATTACGGT.

4. A sample of double-stranded DNA is 31% thymine. Find the percent of A, G, and C. Show your work.

5. A DNA segment is 24 base pairs long and 9 of the pairs are G-C. How many hydrogen bonds hold the two strands together? Show your work.

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6. Why can A not pair with G? Use the sizes of the bases in your answer.

7. Each pair of strands is written base for base. Circle the pair that is NOT complementary and write the correct bottom strand.

a. CGTA / GCAT b. TTAG / AATC c. ACCG / TGGA

8. Compare how DNA is packaged in a prokaryotic cell and in a eukaryotic cell. Give two differences.

9. A typical human cell has roughly 2 meters of DNA inside a nucleus about 10 micrometers wide. Explain how the DNA fits.

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