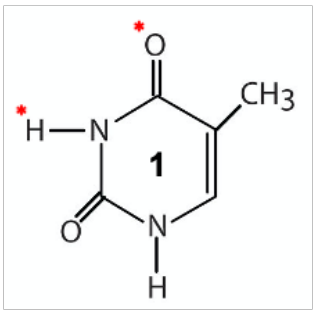
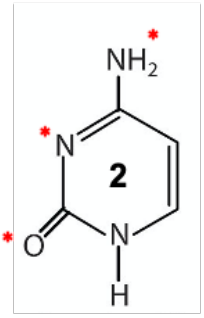
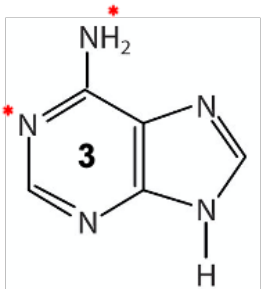
CHEM 1032 – Spring 2023 - Challenge Question 1

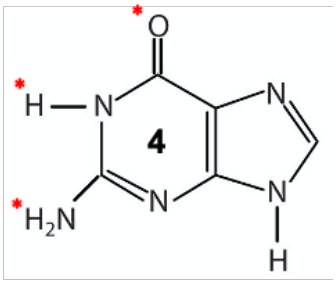
What helps hold DNA together?

A. Base pairing is the term used to describe how two DNA strands are held together. Below are the molecular structures of the four bases which make up DNA. What intermolecular forces would you expect the molecules to have? Justify your answer.
    a. *Having trouble? Review questions from Chapter 10: 7, 8, 9, and 10.*

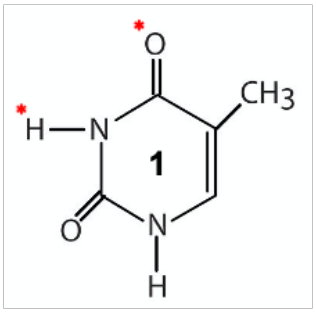


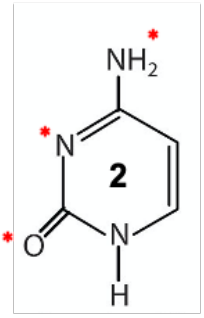


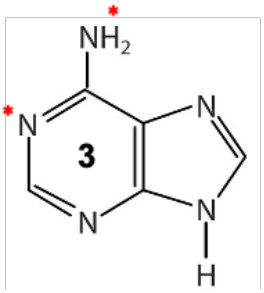


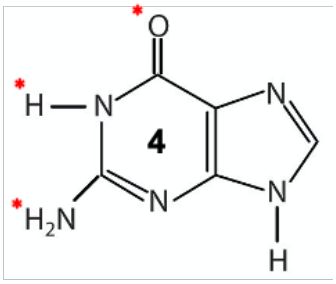


B. Identify which bases pair together. *The stars (*) indicate important atoms in each structure.* How did you determine your answer?









C. If DNA is heated to 90 °C, the DNA strands separate. What is the best explanation for this?
    a. *Having trouble? Review questions from Chapter 10: 13 and 15.*

D. In addition to temperature, specific molecules can separate DNA strands. Work to determine which molecule, CH_2O, $CO(NH_2)_2$, or CH_3CH_2OH would cause the most disruption to double stranded DNA. Justify your answer with explanations and drawings.
    a. *Having trouble? Review questions from Chapter 4: 40, 48, and 50 and Chapter 10: 17, 15, and 21.*

E. What helps hold the base pairs on separate strands together? Use your answers to the previous answers to justify your choice.
    a. *Having trouble? Review questions from Chapter 10: 19*