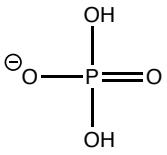
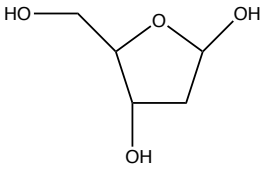
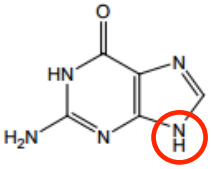
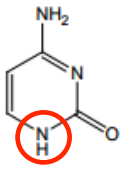
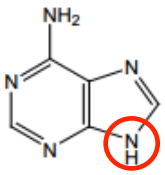
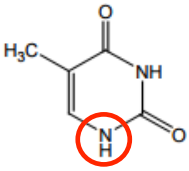
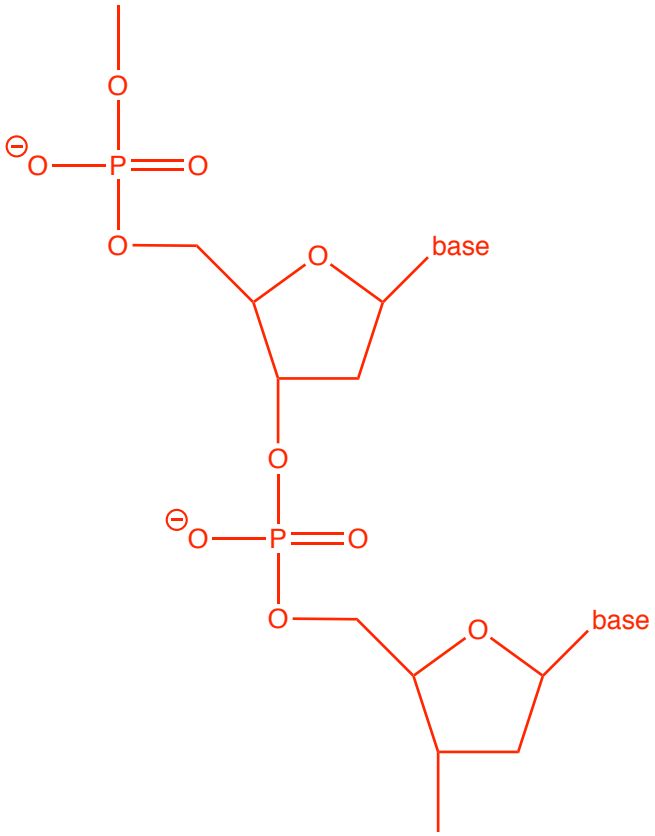
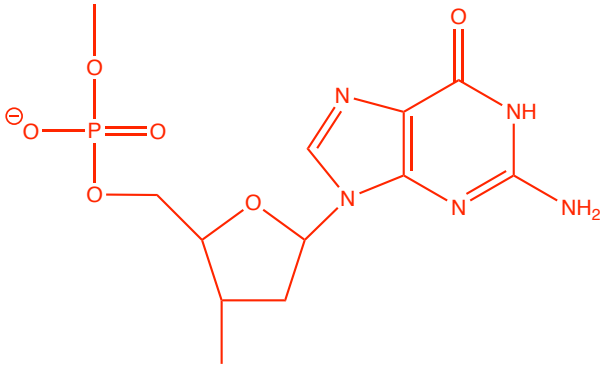
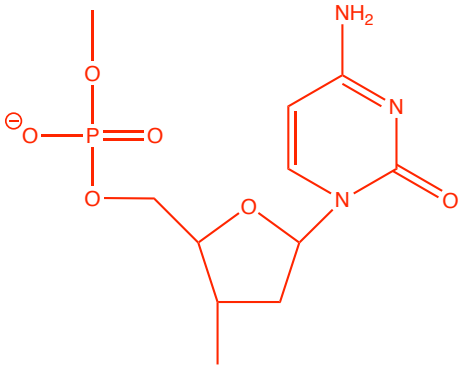
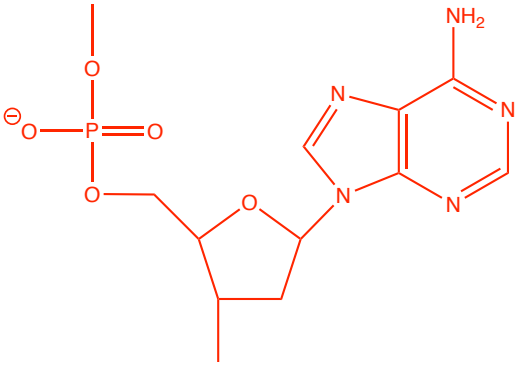
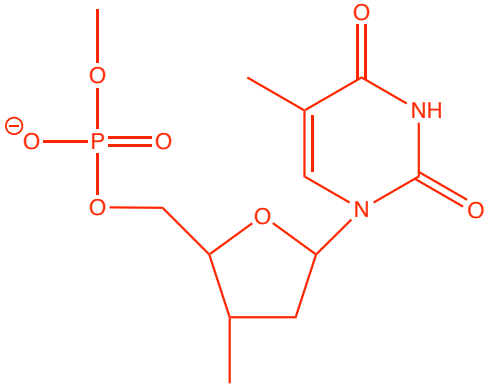
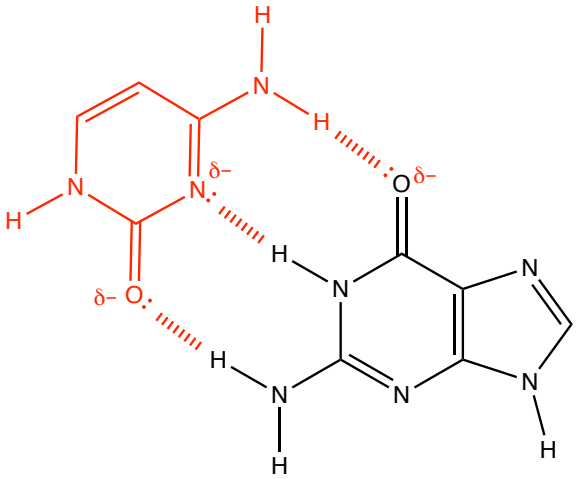
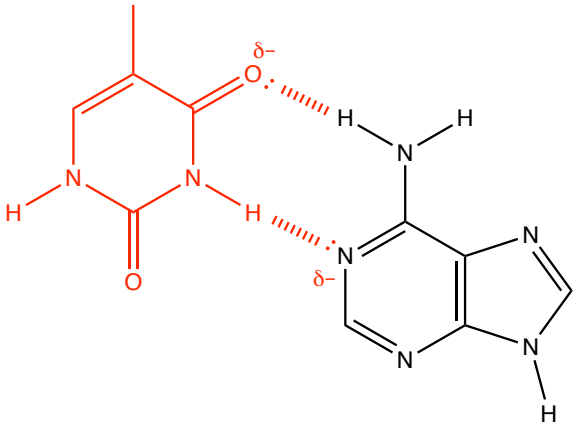
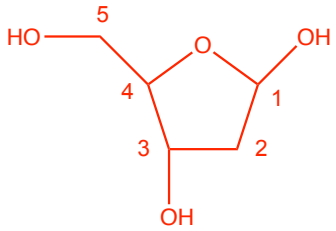
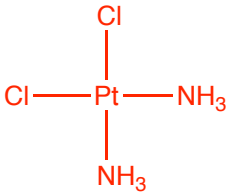
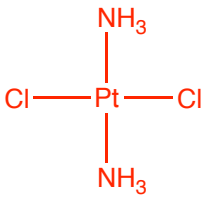
					
phosphate	2-deoxyribose	guanine (G)	cytosine (C)	adenine (A)	thymine (T)

1	Sketch part of the DNA backbone showing two phosphate units joined to two 2-deoxyribose units. 
2	At the top of the page, circle the N atoms on the four bases through which they bond to the 2-deoxribose units.

3	Sketch the nucleotide containing one phosphate, one 2-deoxyribose and one guanine unit. 
4	Sketch the nucleotide containing one phosphate, one 2-deoxyribose and one cytosine unit. 
5	Sketch the nucleotide containing one phosphate, one 2-deoxyribose and one adenine unit. 
6	Sketch the nucleotide containing one phosphate, one 2-deoxyribose and one thymine unit. 

7	DNA consists of two strands each made of nucleotides. What holds the two DNA strands together? **Hydrogen bonds between base units on the nucleotides**
8	Explain why the interaction between cytosine and guanine units is stronger than that between an adenine and a thymine unit. **3 hydrogen bonds between C & G, but only 2 hydrogen bonds between A & T**
9	Sketch how a cytosine unit hydrogen bonds to this guanine unit. 
10	Sketch how a thymine unit hydrogen bonds to this adenine unit. 

11	Draw one 2-deoxyribose unit and show how the C atoms are numbered. 
12	Scientists talk about '3 prime' and '5 prime' ends in DNA. What do these terms refer to? **The number of the C atom that the phosphate group is bonded to**
13	Draw *cis*-platin. 
14	Explain how *cis*-platin stops DNA replication and so can act as an anti-cancer drug. **Pt binds to N in two guanines in DNA (in place of chloride ligand) – this prevents cell replication**
15	Draw *trans*-platin and explain why this would not stop DNA replication.  **Wrong geometry to bind to two guanines on opposite strands so cannot hold DNA strands together**