1. Label the structures of this single nucleotide.

|  |  |  |
| --- | --- | --- |
|  | a. |  |
| b. |  |
| c. |  |

 Name and draw the sugars found in DNA and RNA:

1. Complete the table below to show the pairings of the bases in DNA:

|  |  |
| --- | --- |
| **Purine** | **Pyrimidine** |
|  |  |
|  |  |

1. State where the base uracil can be found:
	1. Is uracil a purine or pyrimidine?
	2. Which base does it pair with?
2. In the space below, draw a **single strand** of **three nucleotides of DNA and RNA**, naming the bonds between them and showing the correct relative position of these bonds.

 **DNA** **RNA**

1. In the space below, draw a **section of DNA**, showing **two *anti-parallel* strands** of **three nucleotides**. Label the *bonds which hold the bases together* as well as the correct *complementary base pairs*. Include also: 5’-3’ ends and linkages.
2. Define the term *double helix*.
*

 Does RNA form a double helix? Why/why not?

1. Explain the relevance of the following in the **double-helix** structure of DNA:
2. Complementary base pairing
*
1. Hydrogen bonds
2. Relative positioning of the sugar-phosphate backbone and the bases
3. The discovery of the structure of DNA earned a Nobel Prize for Watson, Crick and Wilson.

Go to the Nobel Prize website: <http://nobelprize.org/educational_games/medicine/dna_double_helix/readmore.html>

Discussion - How is it a good example of the following:

1. *Internationalism* in science?
2. *Cooperation* in science?
3. *Competition* in science?