Activity 1: Viewing DNA

The aim of this activity is to view a short fragment of DNA in Jalview, then colour the bases in the sequence and examine its 3D structure.

1. Open a web browser such as Chrome or Firefox.
   We suggest you avoid Internet Explorer as Jalview does not always work in older browsers.

2. Google using the words 'Jalview Schools'.
   From the list of results, click on 'Resources for Schools' at www.jalview.org/school-resources.

3. Jalview Schools web page will open.
   Its web address is https://www.jalview.org/school-resources.

4. In Section 2 (below the workbook photo), click the link named 'View DNA fragment'.

5. A new web browser window will open, after a few seconds the sequences of DNA will appear in Jalview.

6. Select the Colour menu in the alignment window.
   Select Nucleotide.

7. Jalview colours the DNA bases, base A is green, base C is yellow, base G is red and base T is blue.
Activity 1: To View the 3D Structure of DNA

8. Select both A & B 3BSE sequences by **clicking and dragging** the mouse. Place the mouse cursor on the **names** of the sequences. **Right-click** the mouse to open a pop-up menu. Select **3D Structure Data**.

**Help:** The mouse cursor should be placed **over the sequence names** before right-clicking the mouse. The wrong menu will open if the mouse is placed on the sequences.

9. In the 'Structure Chooser' box, with both names selected (shaded blue), click **New View**.

10. A 3D structure window opens containing the DNA.

11. Click this window with the mouse, then drag the mouse to change the view.

(i) To rotate the structure, **click and drag** the mouse.
(ii) To zoom, hold down the **shift key**, then **click and drag** the mouse.

Mouse Movements -- for Jmol

Rotate on the X-Y axes: 
Rotate on the Z axis:
Zoom in and out:
Translate the Molecule:

(i) **To move the window**, place the mouse on the title panel on the top of the window, then click and drag the mouse.
(ii) **To enlarge the window**, place the mouse on the lower right-hand corner of the window, then click and drag the mouse.
(iii) **To close the window**, click the ‘X’ in the top right-hand corner of the window.

**Question:** In the DNA helix, which colour bases are paired together?