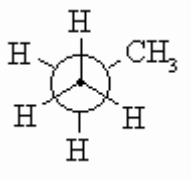
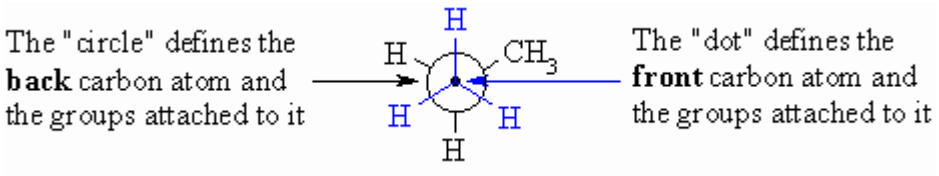


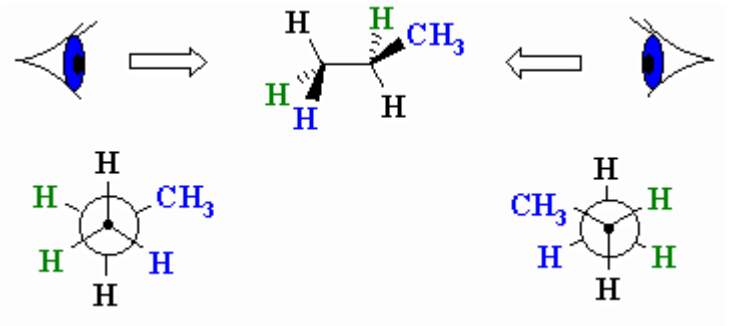
Newman Projection:

These projections are drawn by looking directly along a particular bond in the system (here a C-C bond) and arranging the substituents symmetrically around the atoms at each end of that bond. The protocol requires that the atoms within the central bond are defined as shown below:



In order to draw a Newman projection from a wedge-dash diagram, it is useful to imagine putting your "eye" in line with the central bond in order to look along it. Let's work through an example, consider drawing a Newman projection by looking at the following wedge-dash diagram from the left hand side.

- First draw the dot and circle to represent the front and back C respectively
- Since the front carbon atom has an H atom in the plane of the page pointing up we can add that first
- The back carbon atom has an H atom in the plane of the page pointing down
- Now add the other bonds to each C so that it is symmetrical
- The groups / bonds (blue) that were forward of the plane of the page in the original wedge-dash diagram are now to our right
- Those behind (green) the plane are now to our left



- Try the same thing, but looking from the right to generate the other Newman projection

Cyclohexane:
Drawing cyclohexane so that it looks like a chair can be the key to appreciating the axial and equatorial positions....

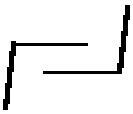
First step is drawing the chair itself. Although the chair "looks better" when slightly angled, it maybe easier to "learn" to draw it with the middle protion horizontal.

adding "wedges" helps show the 3D structure

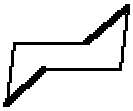
The chair can be obtained by drawing opposite sides as 3 sets of parallel lines

First draw the sides of the middle portion

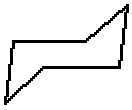
Next draw in the first half of each end



Finally complete the two ends



Done !



angled

horizontal