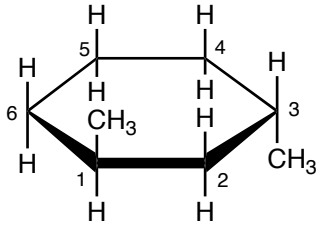
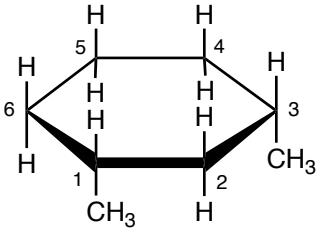
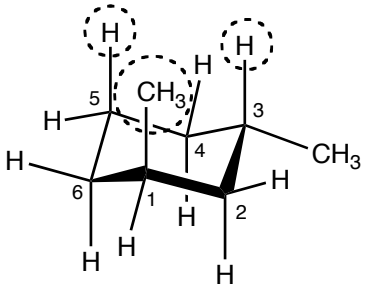


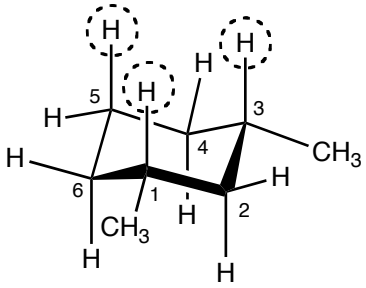
trans-1,3 dimethylcyclohexane



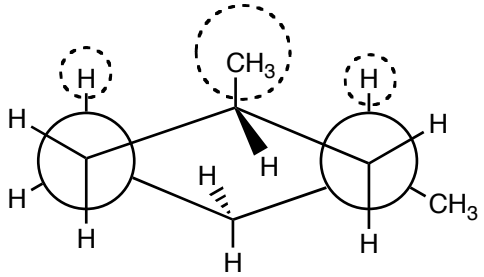
cis-1,3 dimethylcyclohexane



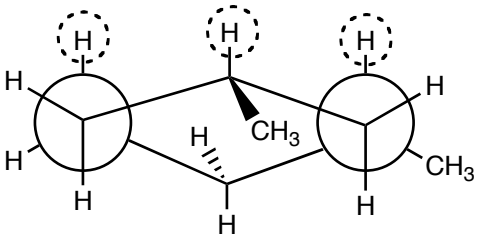
Lowest energy configuration of *trans*-1,2 dimethylcyclohexane.



Lowest energy configuration of *cis*-1,2 dimethylcyclohexane.



Newman Projection (looking down the 6,5 and 2,3 C-C bonds) of *trans* isomer showing the diaxial interactions between hydrogens and methyl group.



Newman Projection (looking down the 6,5 and 2,3 C-C bonds) of *cis* isomer showing the diaxial interactions between hydrogens and equitorial methyl groups.

Figure 3: Structural Formulas as Models. The top row shows the two distinct structural formulas for 1,3 dimethyl cyclohexane. These formulas reveal only the information contained in the systematic names, which are reproduced below the corresponding formula. The second and third rows contain structural formulas that bring out the steric differences between the lowest energy chair configurations of these distinct compounds. The assignment of boiling points based on structural formulas used as names -- the first row -- was incorrect. The correct assignment required recognizing and comparing the conformations available to these compounds as facilitated by the formulas in the second and third rows.