Newman Conformations
1. Draw the staggered conformation and eclipsed conformation Newman projections for ethane.

2. (Note the dihedral angle). Draw the 0° Eclipsed, 60° Gauche, 120° Eclipsed, 180° Anti, 240° Eclipsed, and 300° Gauche conformations for butane.

Chair Conformations
1. Draw a chair conformation for each molecule below. Draw the ring-flipped version of each molecule. Circle the more stable of the two conformers.

   cis-1-Bromo-2-chlorocyclohexane
   trans-1,3-diethylcyclohexane

2. Draw the more stable chair conformation for each of the following cyclohexanes. Then “flip” the ring and redraw the molecule in the higher energy form.

   chlorocyclohexane
   trans-1-methyl-3-propylcyclohexane
   cis-1-chloro-2-methylcyclohexane
   cis-1-tert-butyl-4-methylcyclohexane

3. Which compound below is more stable? Explain.
4. There are two possible arrangements for decalin.

![Decalin](image)

**Decalin**

a. Draw out the two stereoisomers.
b. Which is the most stable and why?

5. Glucose is a simple sugar with 5-substituents bonded to a 6-membered ring.
a. Using a chair representation, draw the most stable arrangement of these substituents on the 6-membered ring.
b. Convert the representation into one that uses a hexagon with wedges and dashes (2D structure).