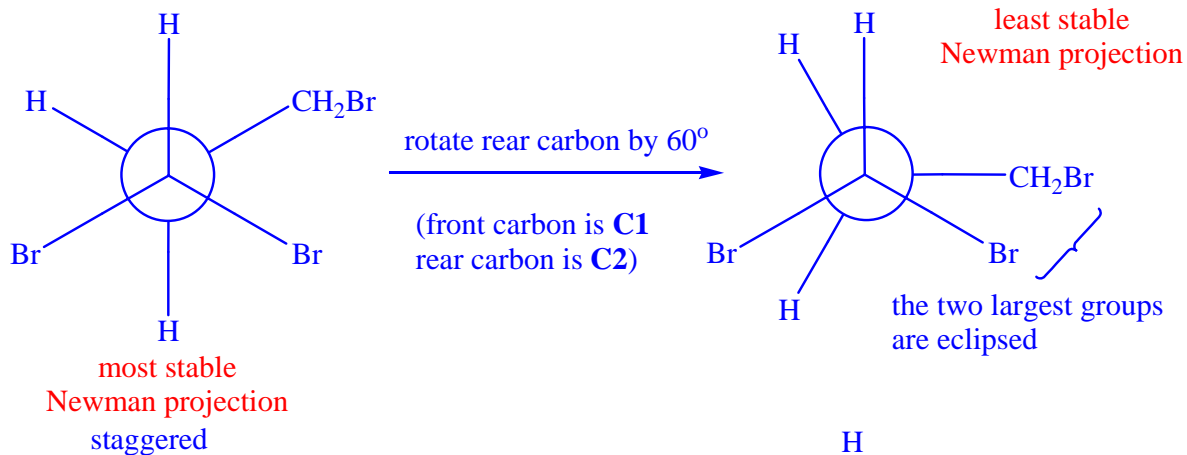
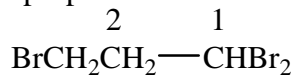
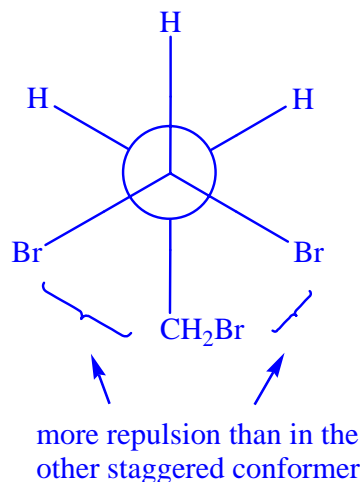


CHEM 201
Quiz # 4 Chapter 4: Stereochemistry

1. Draw the Newman projections for the **most stable** and the **least stable** conformations about the **C1-C2** bond of 1,1,3-tribromopropane:

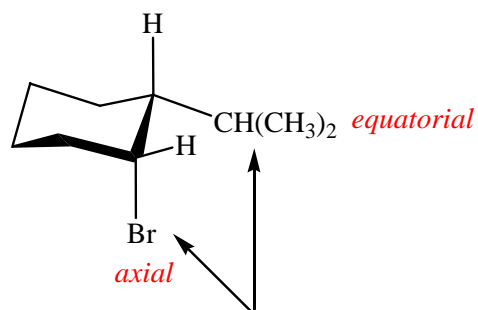


note that there is another staggered conformation which encounters some repulsion and thus is less stable



2. Draw the **most stable chair** conformation for *cis*-1-bromo-2-isopropylcyclohexane

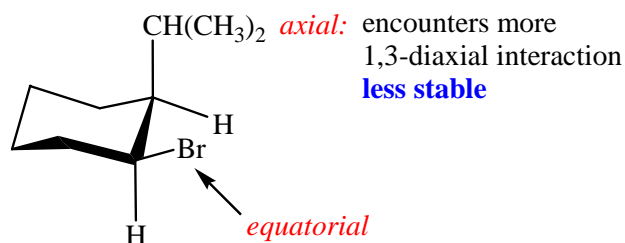
the most stable chair conformation is



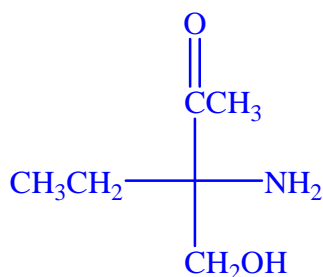
* both substituents are on the same side of the ring: *cis*

* also the bulkier group (isopropyl group) is equatorial, thus encounters less 1,3-diaxial interaction

the other *cis* chair conformer has the bulkier group on axial position

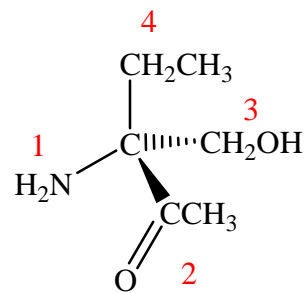


3. For the following 3-dimensional structure:
 (a) Draw the corresponding Fischer projection.
 (b) Designate the structure as **R** or **S**.

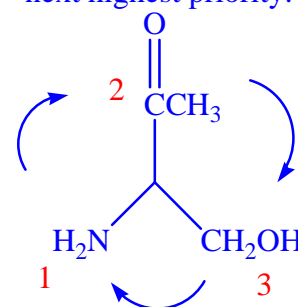


- By convention, in drawing the Fischer projection, the carbonyl group (or group of highest nomenclature priority) is placed at or near the top.
- Each intersection of the horizontal and vertical lines represents a chiral carbon.
- Each horizontal line represents a bond coming toward the viewer, while the vertical line represents bonds going back, away from the viewer.
- Please note that there could be other correct Fischer projections of the molecule.

H							He
Li	Be	B	C	N	O	F	Ne
Na	Mg	Al	Si	P	S	Cl	Ar
						Br	
						I	



1. Order the priority of the four groups attached to the chiral carbon atom: H₂N (highest), COCH₃, CH₂OH, CH₂CH₃ (lowest)
2. Project the molecule with CH₂CH₃ (lowest priority) to the rear.
3. Start from the group of highest priority and proceed to the group of next highest priority.



4. The arrow is clockwise. Therefore, the absolute configuration is (*R*).

You also can verify it by checking that the Fischer projection has (*R*) configuration.