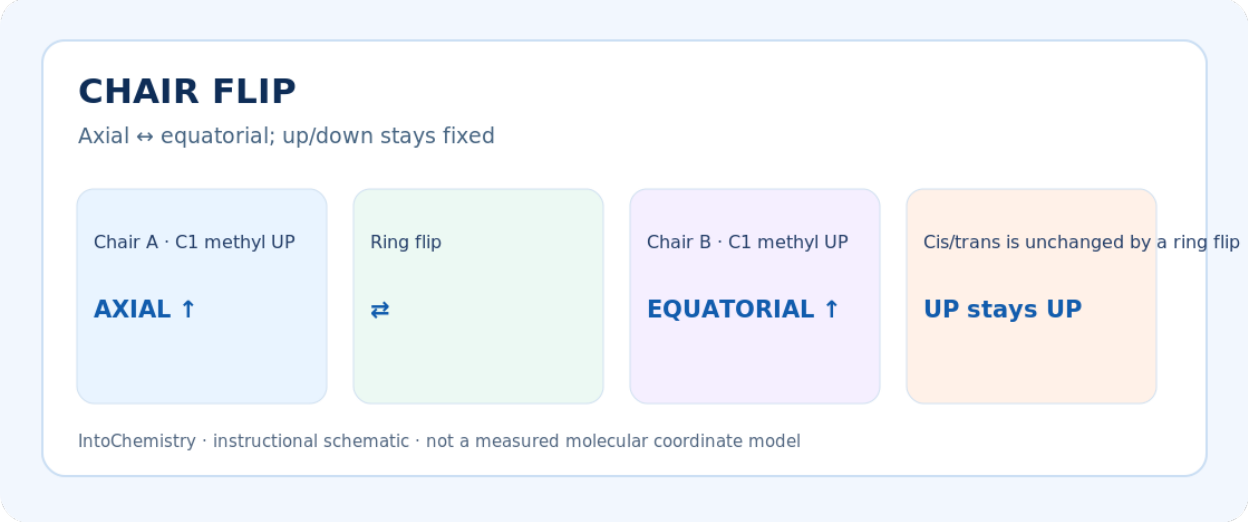
Chair Conformations & Ring Flips — Practice Worksheet

Name: _____ **Date:** _____

Skills: Map substituent directions and positions before and after a chair flip.



Directions: Answer every question. Include a quick labeled sketch or your reasoning when asked. Show chair positions and up/down directions separately.

1. Substituent at C1 points up. Chair A has axial up at C1, C3 and C5. Chair B is its ring-flipped conformer. Where is the substituent in chair A?

2. Substituent at C2 points up. Chair A has axial up at C1, C3 and C5. Chair B is its ring-flipped conformer. Where is the substituent in chair A?

3. Substituent at C3 points down. Chair A has axial up at C1, C3 and C5. Chair B is its ring-flipped conformer. Where is the substituent in chair A?

4. Substituent at C4 points down. Chair A has axial up at C1, C3 and C5. Chair B is its ring-flipped conformer. Where is the substituent in chair A?

5. Substituent at C5 points up. Chair A has axial up at C1, C3 and C5. Chair B is its ring-flipped conformer. Where is the substituent in chair A?

6. A substituent is equatorial down in chair A. What is it after ring flip?

7. A methyl group is axial up on C3 in chair A. Does its ring flip create a different stereoisomer?

8. Why is equatorial methylcyclohexane generally more stable?