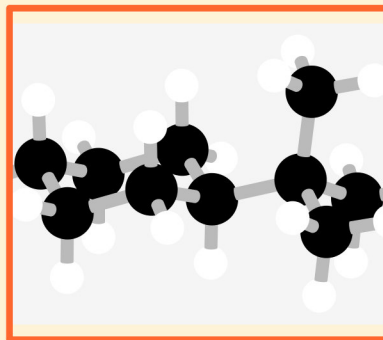


HIGHLIGHTS

- How to draw the chair conformation
- Axial & equatorial groups
- Ring flipping
- Minimizing 1,3-diaxial interactions
- Mapping a skeletal drawing to a chair conformation
- Identifying the most stable conformation



Cyclohexane can exist in a strain free conformation known as the **chair conformation**. Substituents on the ring exist in two different steric environments, known as **axial** or **equatorial** positions. **Ring flipping**, or the change in conformation, links two chair conformations where all the axial and equatorial groups interconvert. The favoured chair conformation places the largest substituents in the equatorial position, minimising disfavoured steric, or **1,3-diaxial**, interactions. The principles discussed, can be applied to other rings such as carbohydrates and the transition states of many reactions making this is a useful topic to master.



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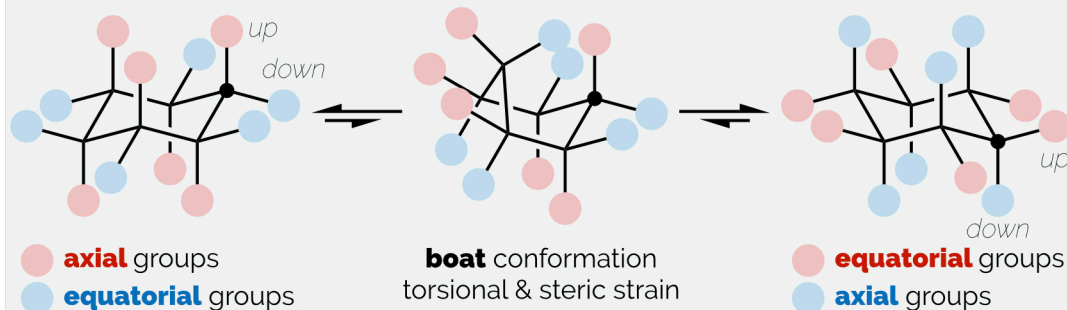
CONFORMATION OF CYCLOHEXANE

THE CHAIR CONFORMATION



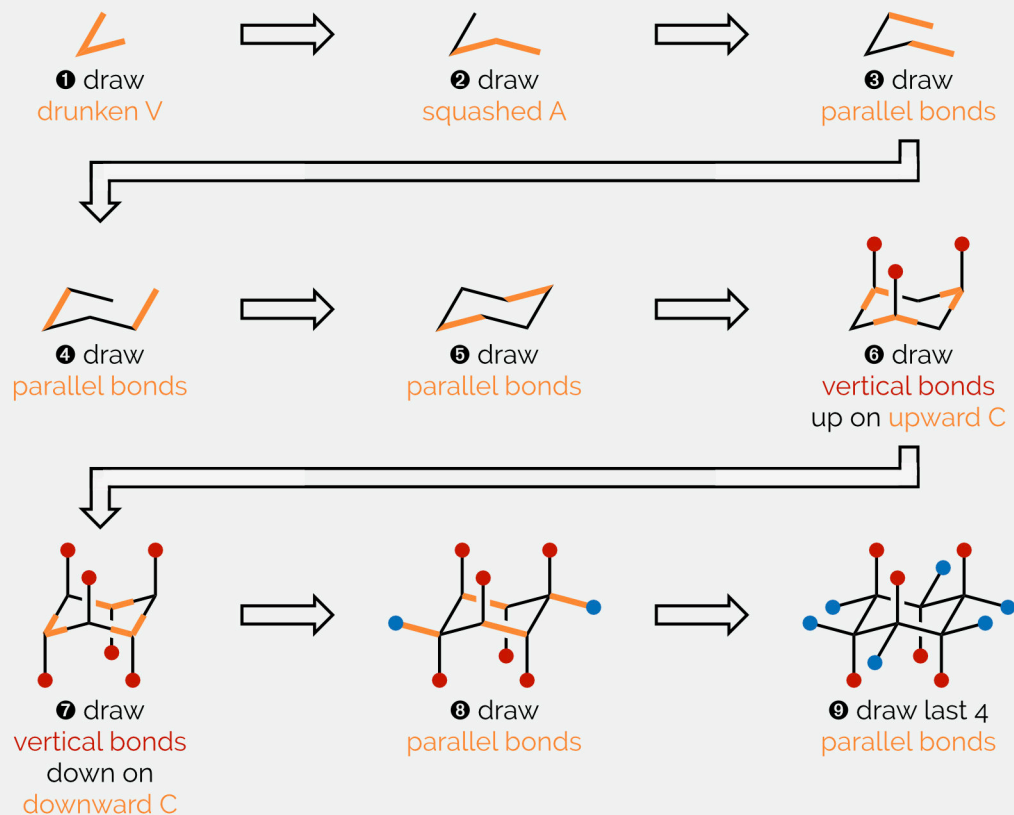
The Conformation of Cyclohexane

1. The chair & ring flipping

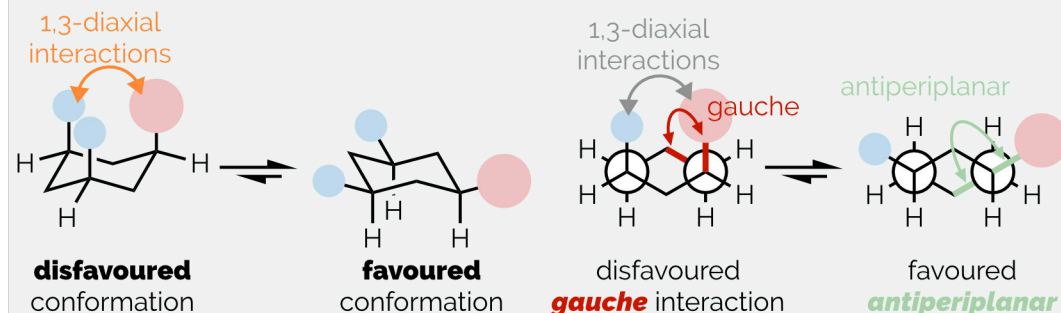


6 axial groups become 6 equatorial groups by ring flipping - still on same face of ring

2. Drawing the chair conformation

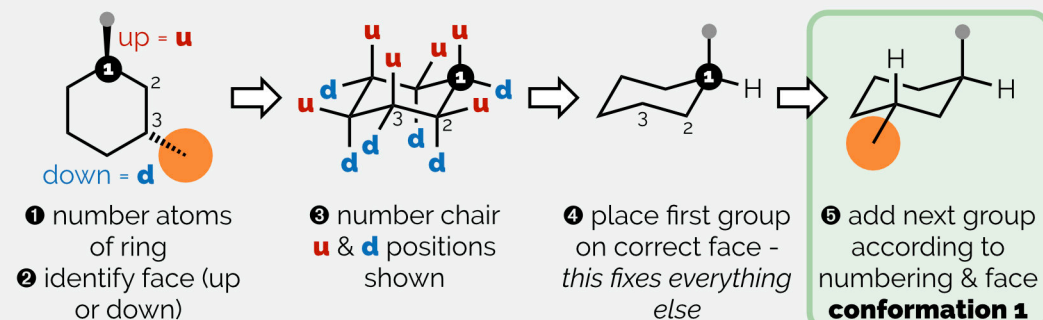


3. The favoured conformation

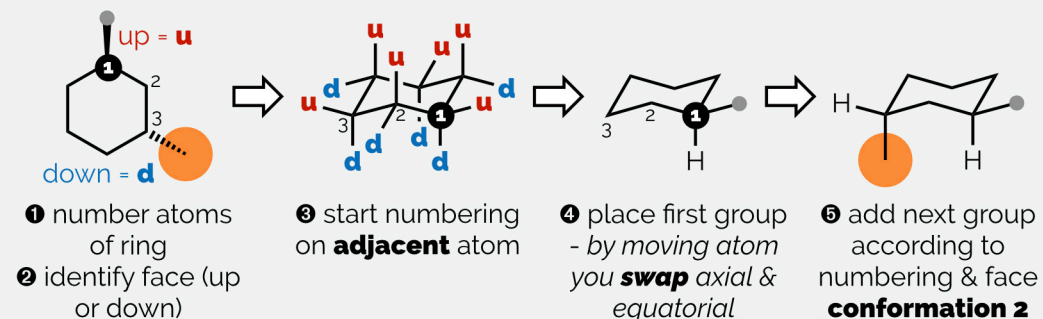


4. Mapping the skeletal representation onto a chair

draw conformation 1



draw conformation 2



Conformation 1 is **favoured** as the **larger group** is **equatorial**, minimizing 1,3-diaxial interactions & gauche interactions.