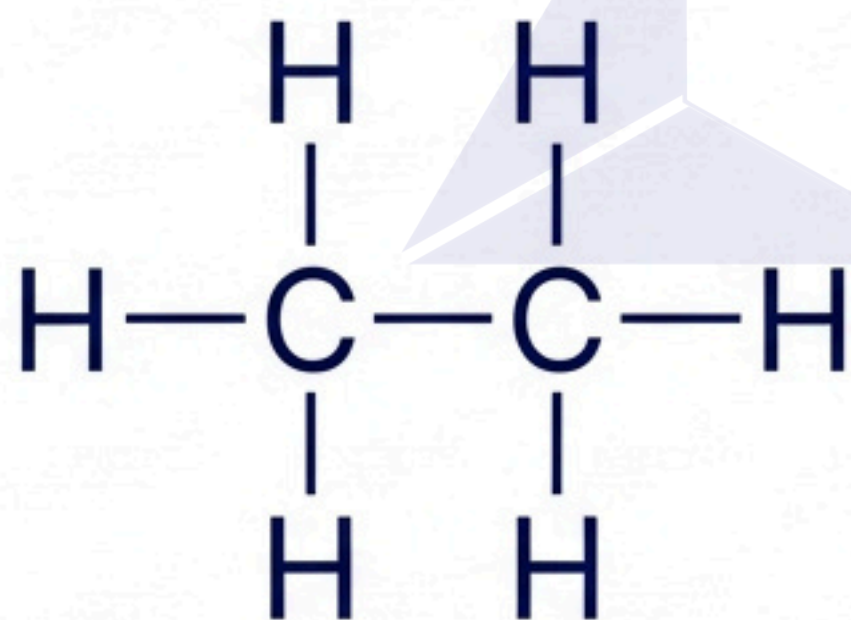


The Shorthand of Chemistry: Structural Formulas

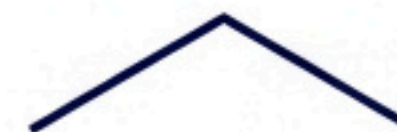
Mastering Complete, Condensed, and Bond-Line representations to read and write organic molecules like a pro.



Complete



Condensed

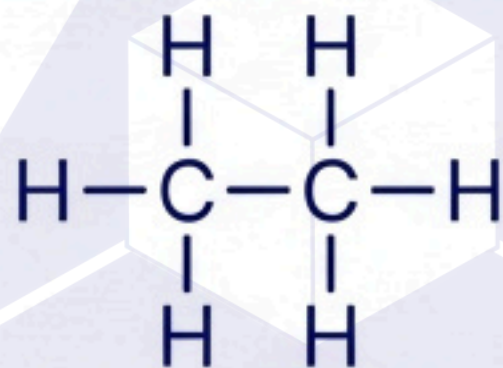


Bond-Line

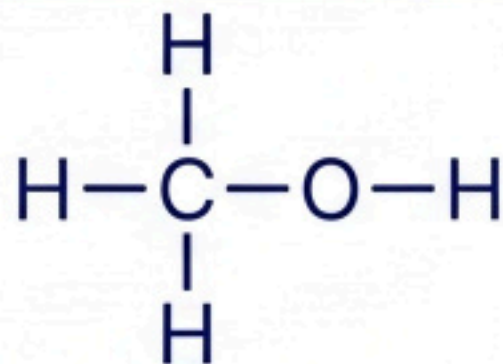
Complete Structural Formulas (Explicit)

These represent standard Lewis structures, showing all atoms and all bonds using distinct dashes.

Ethane



Methanol

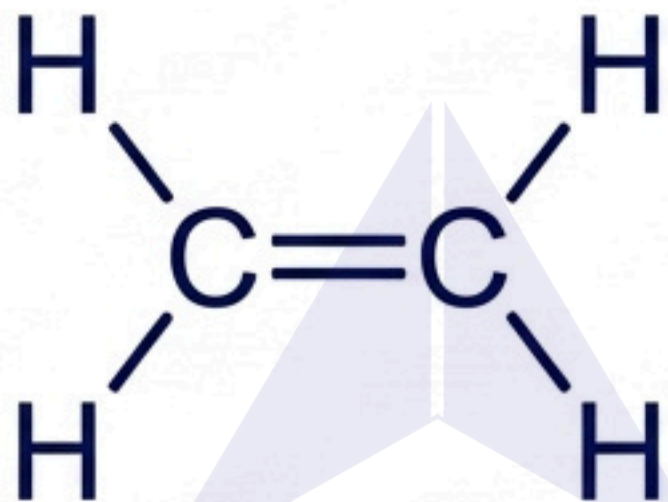


Condensed Structural Formulas (Compact)

Time is saved by omitting some or all dashes. Identical groups attached to an atom are indicated by a subscript.



Ethene (Double Bond)



Ethyne (Triple Bond)



Notice how multiple bonds are often kept visible in condensed formulas to help identify the molecule's core structure at a glance!



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Let's Test Them Now.**

$$E=mc^2$$



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- » Free Study Material, Videos & Infographics
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- » Practice Unlimited MCQs for NEET & JEE
- » Get Clear Explanations, Not Just Marks
- » Track Your Performance Smarter



The Ultimate Pro-Tool: Bond-Line Formulas

The Zig-Zag

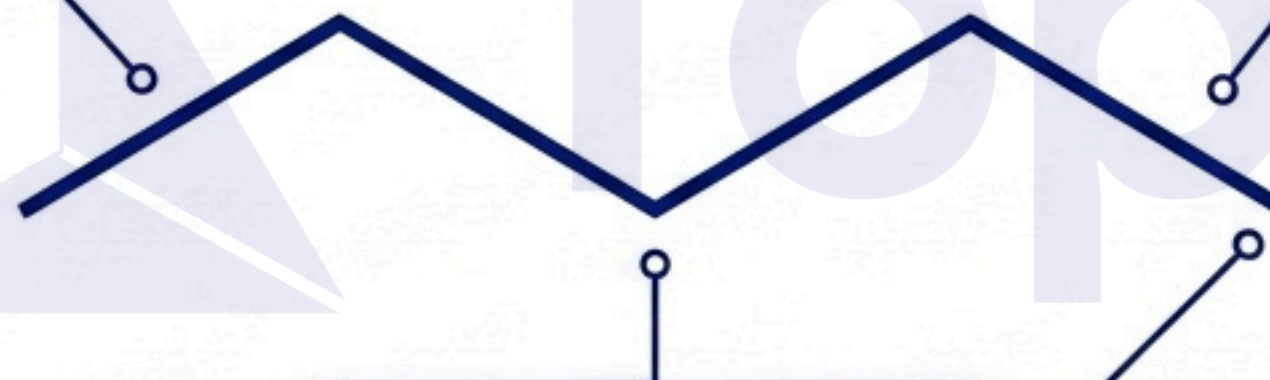
Carbon-carbon bonds are drawn as solid zig-zag lines to clearly separate individual bonds.

Hydrogen Omission

Hydrogens attached to Carbons are invisible. We assume every Carbon fulfills its 4-bond requirement (tetravalence).

Carbon Omission

Carbons are not written. Every vertex (corner) and terminal (end of a line) represents a Carbon atom.



Visual Anatomy

Terminal =
Methyl (CH_3) group.



Intersection =
Methylene (CH_2) group.

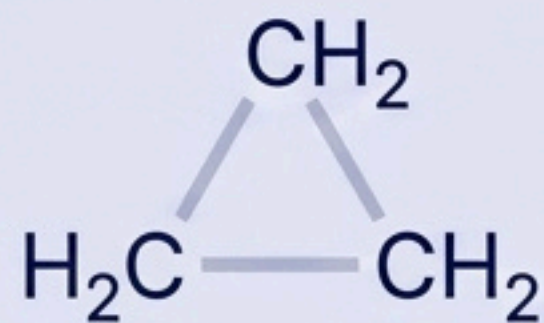
Heteroatoms Rule:

Atoms other than C and H (like O, N, Cl) must be explicitly written, along with their attached hydrogens.

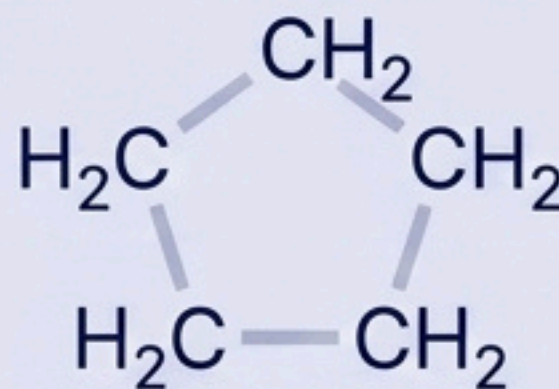
Cyclic Bond-Line Structures

Polygons act as perfect bond-line shorthand for closed-chain compounds.

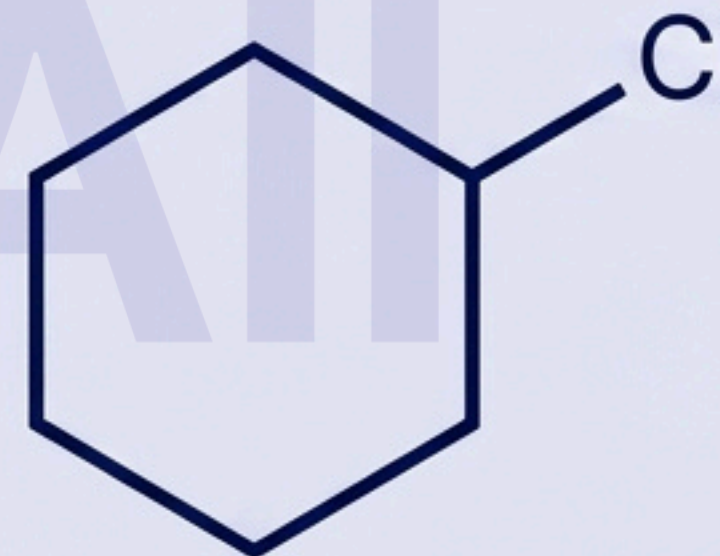
Cyclopropane



Cyclopentane

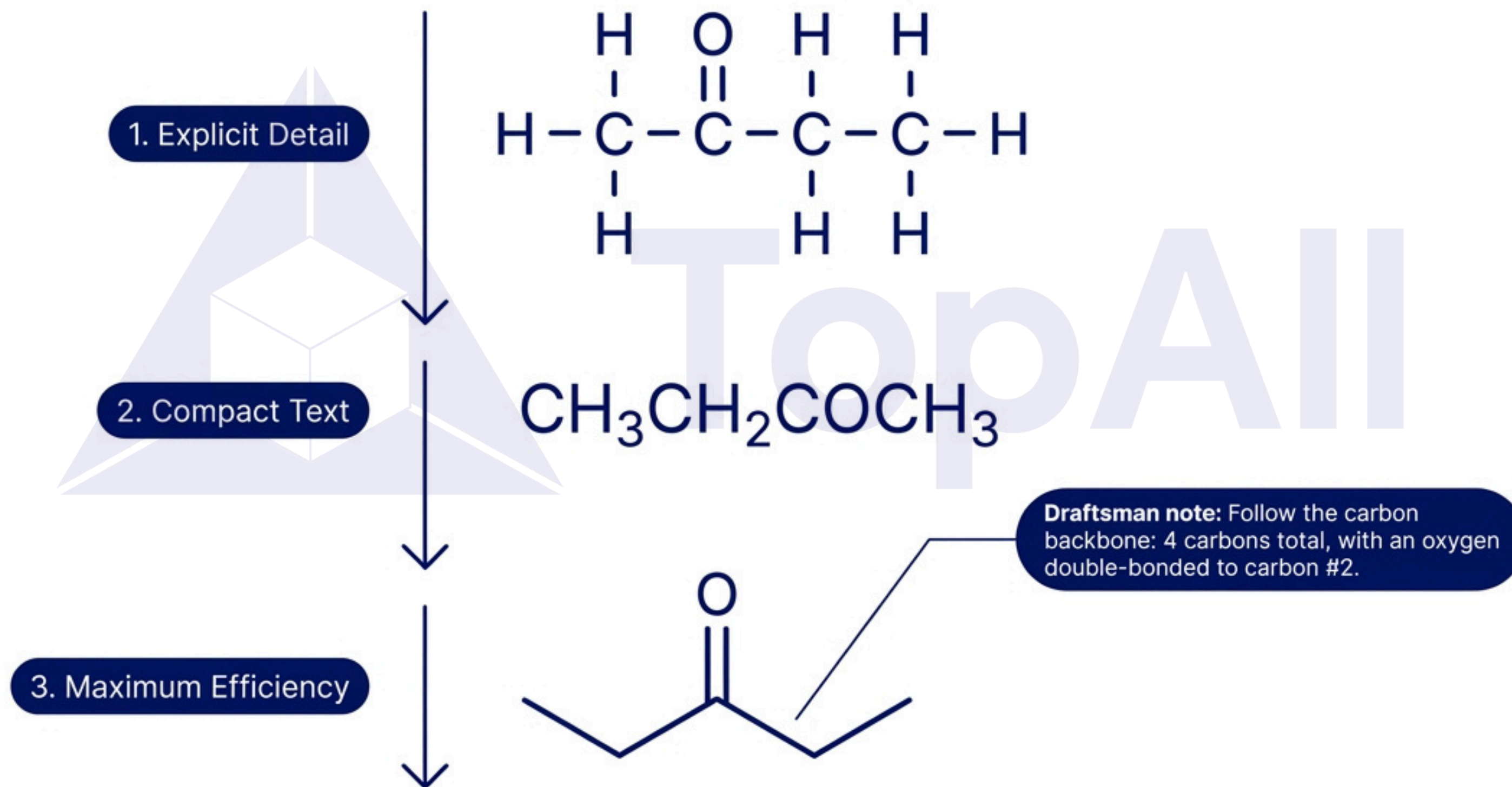


Chlorocyclohexane



Demonstrating how branches and heteroatoms integrate seamlessly into cyclic polygons.

Master Conversion: Butan-2-one



Key Takeaways

Complete = Explicit



Shows every single atom and bond. Great for learning structural fundamentals, but extremely slow to draw.

Condensed = Compact



Dashes are omitted entirely. Identical functional groups are clustered using numerical subscripts (e.g., CH_3). Ideal for text formatting.

Bond-Line = Efficient



Zig-zags represent C-C bonds. Carbons and attached Hydrogens are mathematically assumed. Heteroatoms are explicitly drawn.

Great job! You now speak the visual language of organic chemistry.



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