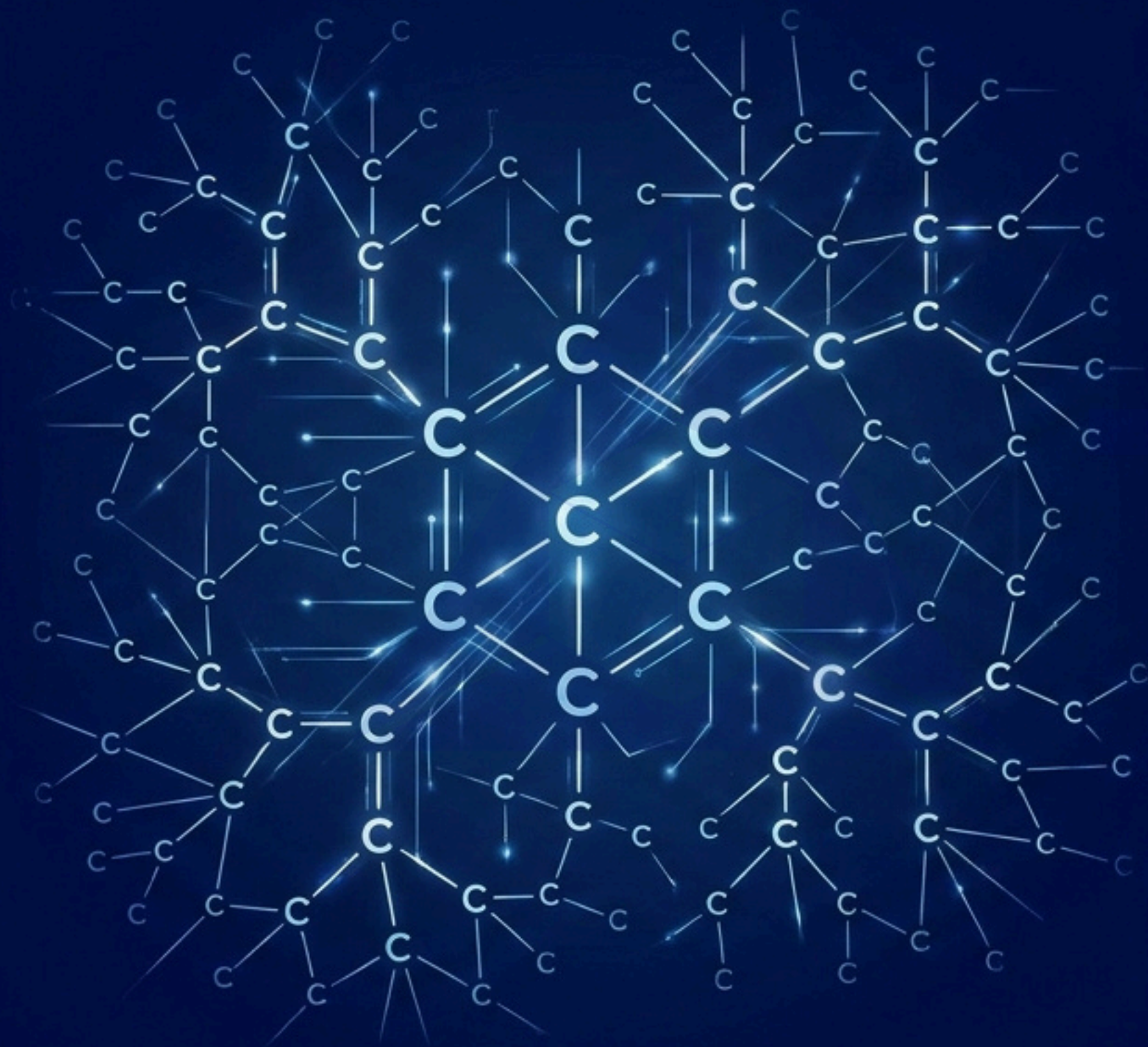




The Chaos of Catenation

Carbon's unique property to form long covalent chains and rings generates millions of unique organic compounds.

Without a scalable, universal identification system, global chemical communication is impossible.

A transition from arbitrary labels to a systematic molecular blueprint.

History vs. Logic: The Evolution of Naming

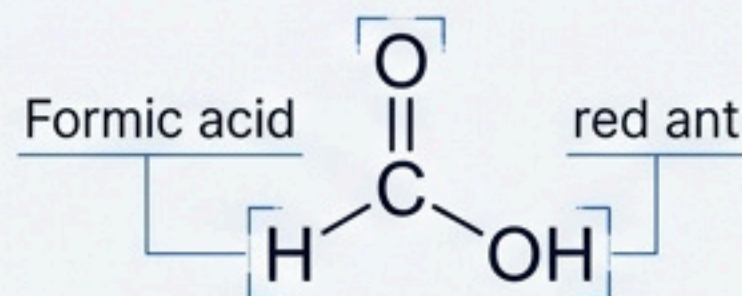


Common (Trivial) Names

Origin-based. Named after the source where the compound was first discovered.

Pros/Cons: Easy to pronounce, but impossible to scale or deduce chemical structure from.

Example: Formic acid
(from Latin formica,
meaning red ant).

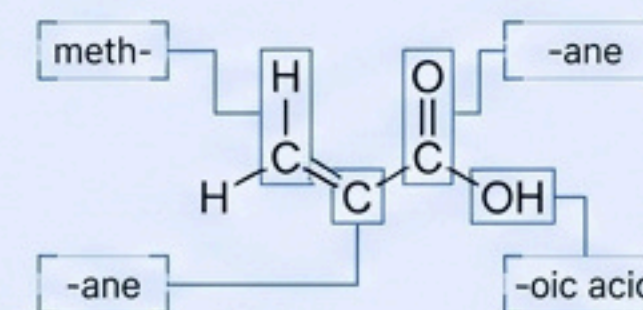


IUPAC System

Structure-based. Developed by the International Union of Pure and Applied Chemistry.

Pros/Cons: Highly scalable. Every syllable maps directly to a physical part of the molecule.

Core Philosophy:
The name is not just a label; it is a reverse-engineerable formula.





**You've Learned the Theory.
Let's Test Them Now.**

$$E=mc^2$$



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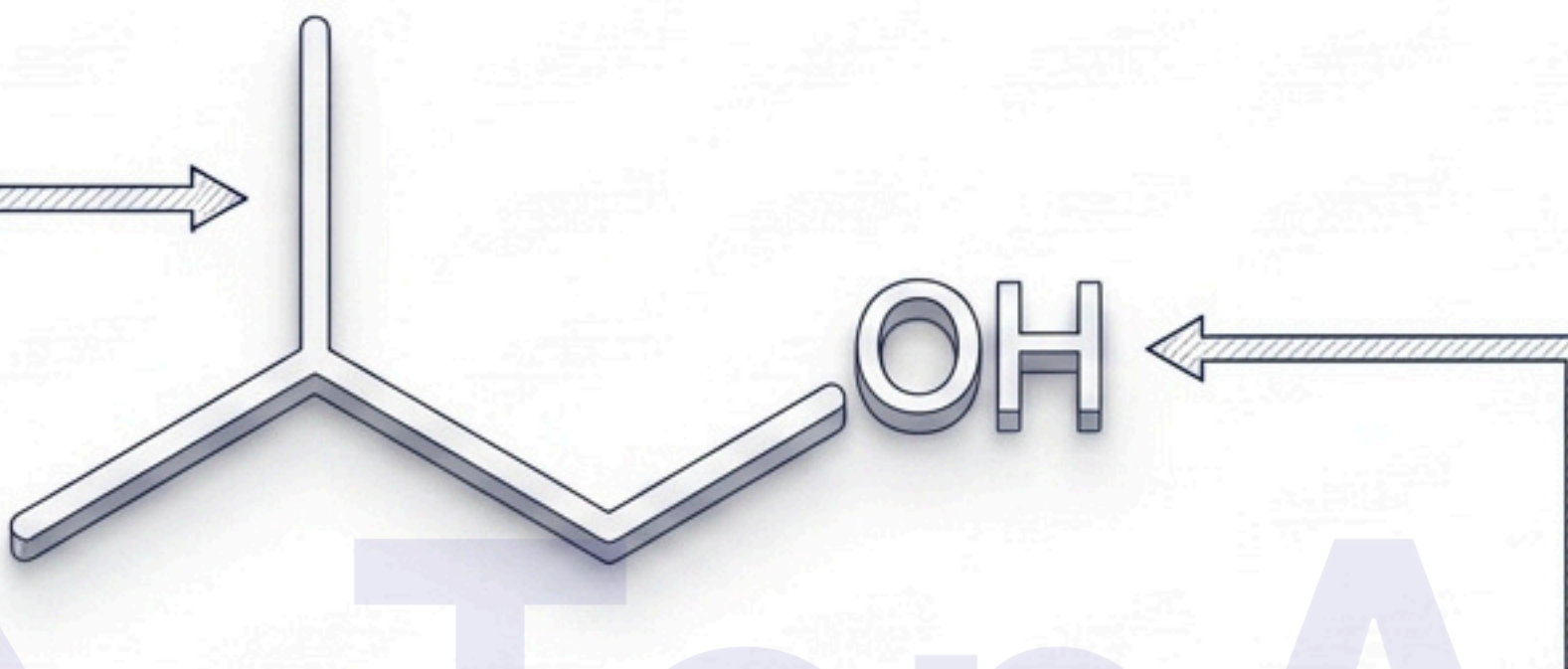
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The Anatomy of a Molecular Blueprint



2-methylpropan-1-ol

[Prefix]

2-methyl

Indicates Branches /
Substituents.

[Word Root]

propan

Indicates the Longest Carbon
Chain (Meth, Eth, Prop, But...).

[Suffix]

-1-ol

Indicates the Primary
Functional Group.

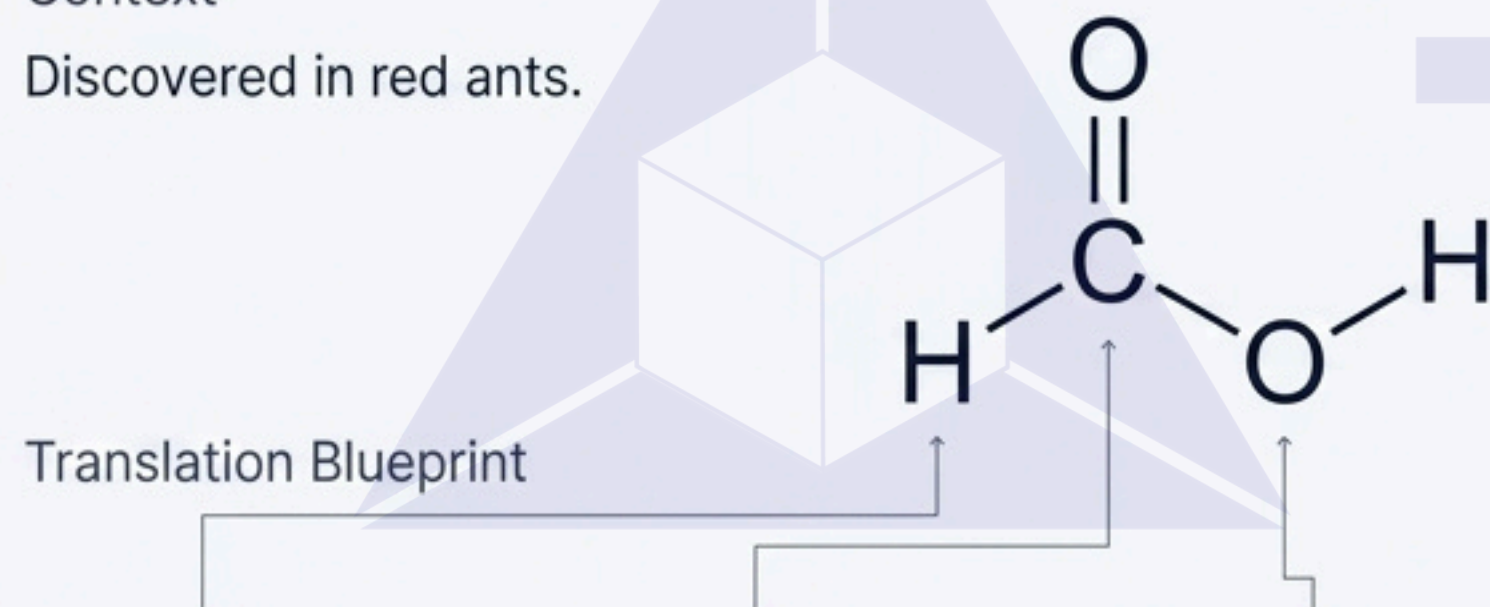
The Golden Rule: Every IUPAC name is strictly constructed as **Prefix + Root + Suffix**.

Translation in Action: Decoding Trivial Names

Card 1: Formic Acid (The Simple Translation)

Context

Discovered in red ants.

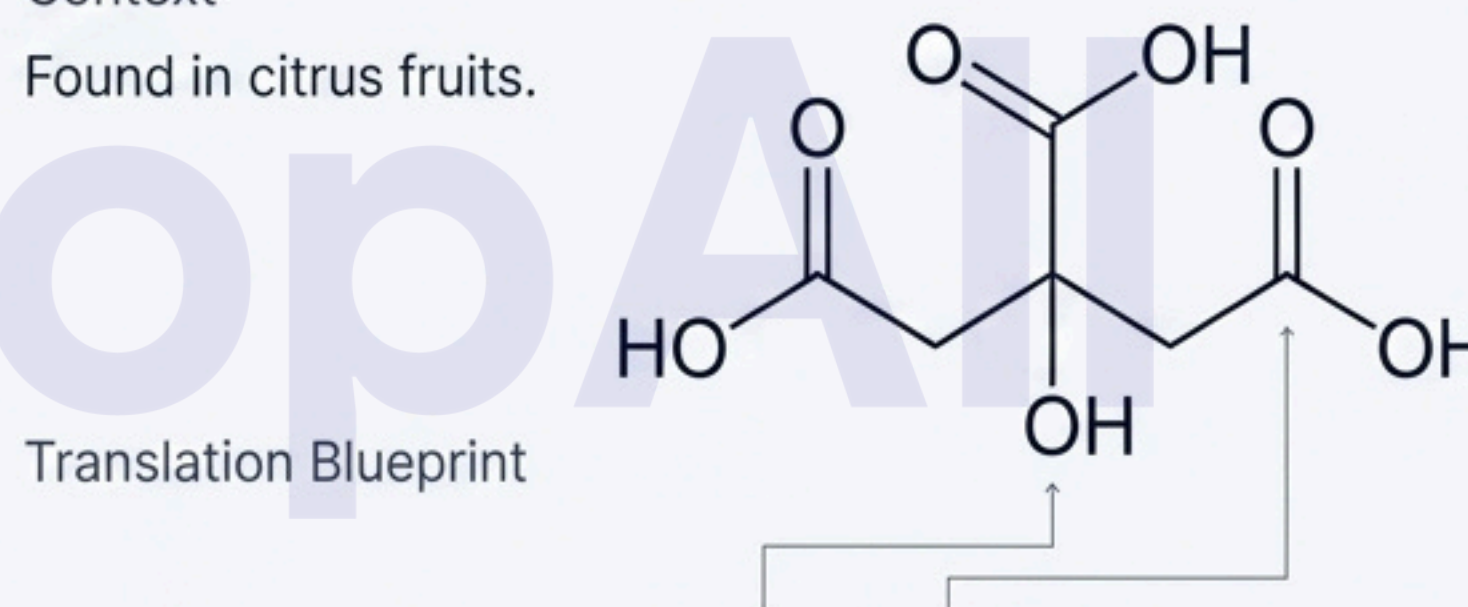


Meth (1 Carbon) + anoic acid (Carboxylic group) = Methanoic Acid

Card 2: Citric Acid (The Complexity Limit)

Context

Found in citrus fruits.



Translates to "2-hydroxypropane-1,2,3-tricarboxylic acid."

Why Common Names Survive: While IUPAC provides structural perfection, trivial names remain in use for highly complex, everyday molecules due to conversational convenience.

The JEE Nomenclature Revision Frame

The Numbering Checklist

- 1** Identify the longest continuous carbon chain containing the principal functional group.
- 2** Number the chain ensuring the principal functional group gets the lowest possible locant (number).
- 3** List substituent prefixes in alphabetical order (e.g., Ethyl before Methyl, ignoring di/tri).

The Priority Order Dashboard

Decreasing Priority of Functional Groups (Memorize this order)

- -COOH (Carboxylic) >
- $\text{-SO}_3\text{H}$ (Sulfonic) >
- -COOR (Ester) >
- -COCl (Acyl Halide) >
- -CONH_2 (Amide) >
- -CN (Nitrile) >
- -HC=O (Aldehyde) >
- >C=O (Ketone) >
- -OH (Alcohol) >
- -NH_2 (Amine) >
- >C=C< (Alkene) >
- $\text{-C}\equiv\text{C-}$ (Alkyne).



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