

Organic Retrieval, Nomenclature, and Structural Reasoning

g12_u01_w01

Purpose and boundary

Use original fictional structure/name cards only. No chemicals, synthesis, handling, procedure, or real-world reactivity decision is requested.

Targets: I can translate among organic representations, identify functional-group evidence, and state representation limits. **Vocabulary:** skeletal structure, condensed formula, functional group, parent chain, isomer, representation. **Prerequisites:** bonding, nomenclature, formula, functional groups.

All structure cards are fictional text representations and are not instructions for making or using substances.

1. Distinguish a molecular formula from a structural formula.

2. What information does a skeletal representation conventionally omit or simplify?

3. Identify the functional group in $\text{CH}_3\text{CH}_2\text{OH}$.

4. Identify the functional group in CH_3CHO .

5. Identify the functional group in CH_3COOH .

6. Write a condensed representation for a three-carbon alkane.

7. Write the molecular formula for $\text{CH}_3\text{CH}_2\text{OH}$.

8. Explain why formula $\text{C}_2\text{H}_6\text{O}$ can have more than one structural representation.

9. A fictional card lists a carbonyl and a terminal hydrogen on that carbon. Which functional-group class is supported?

10. A card lists a carbonyl bonded to two carbon groups. Which class is supported?

11. Why does a functional-group label not determine every physical property?
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12. A card has a six-membered ring drawing. Name one representation question before inferring exact geometry.
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13. Explain why line-angle drawings need a stated convention for implied carbons/hydrogens.
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14. A student calls every oxygen-containing formula an alcohol. Correct the claim.
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15. A fictional name card says 2-methylpropane. State its parent-chain and branch information.
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16. Distinguish constitutional isomerism from a drawing orientation change.
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17. State one supported and one unsupported claim from a condensed formula.
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18. Why is a name/structure translation a model skill rather than evidence of a reaction outcome?
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19. Propose one additional representation that could reduce ambiguity in a fictional card.
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20. Write a two-sentence bounded structural claim from a fictional formula and functional-group card.
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