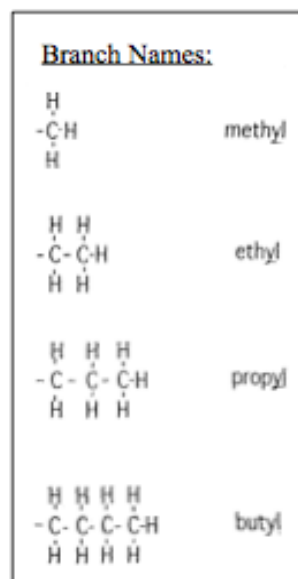


LO: Students will be able to name basic organic compounds.

DOL: Students will correctly identify organic compounds at least 4/5 times.

**Branched Alkanes:** alkane consisting of a long chain with smaller carbon branches attached to it. Each branch gives the alkane new chemical and physical properties

Simply:  
Replacing a hydrogen with  
another carbon group



**Steps for naming**

- Find the longest continuous chain of carbon atoms in the molecule (circle this chain and label it the parent chain) Name the parent chain as though it is a continuous-chain alkane (i.e. if there are 6 carbons then name it hexane)
- Find all the branches (circle them individually).
  - Each branch is called an alkyl group (an alkyl group is a branch of a larger molecule consisting of an alkane with one hydrogen removed)
- Name each group with the prefix based on the number of carbons within the alkyl group, then add suffix "-yl" to it
- To tell where each branch is on the parent chain, number the carbons on the parent chain starting at the end nearest the first branch.
- Communicate the amount of each branch type in the molecule using prefixes
- Put the name together, starting with the alkyl groups (in alphabetical order) and ending with the parent chain.  
Note: there should be no spacing in the name

| Number of Branches in the Chain | Prefix    |
|---------------------------------|-----------|
| 1                               | no prefix |
| 2                               | di        |
| 3                               | tri       |
| 4                               | tetra     |
| 5                               | penta     |
| 6                               | hexa      |
| 7                               | hepta     |
| 8                               | octa      |

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for the rest of the slides, you will either draw the structure or write the name and we will work these out in class together. You should skip two lines between each sample problem because some of the names get fairly long.

| Structure   | Name |
|---|------|
| $\begin{array}{ccccccc} & & & & \text{CH}_3 & & \\ & & & &   & & \\ \text{CH}_3 & - & \text{CH} & - & \text{C} & - & \text{CH}_3 \\ & &   & &   & & \\ & & \text{CH}_3 & & \text{CH}_3 & & \end{array}$ |      |

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| Structure  | Name |
|--|------|
| $\begin{array}{ccccccc} \text{CH}_3 & - & \text{CH}_2 & - & \text{CH}_2 & - & \text{CH} & - & \text{CH}_3 \\ & & & & & &   & & \\ & & & & & & \text{CH}_3 & - & \text{CH} & - & \text{CH}_3 \end{array}$ |      |

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| Structure   | Name |
|---|------|
| $\begin{array}{cccccccc} \text{CH}_3 & - & \text{CH}_2 & - & \text{CH} & - & \text{CH} & - & \text{CH} & - & \text{CH} & - & \text{CH}_3 \\ & & & &   & &   & &   & &   & & \\ & & & & \text{CH}_3 & & \text{CH}_3 & & \text{CH}_3 & & \text{CH}_3 & & \end{array}$ |      |

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| Structure | Name           |
|-----------|----------------|
|           | 3-methylhexane |

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| Structure | Name              |
|-----------|-------------------|
|           | 3,3-diethyloctane |

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| Structure | Name                   |
|-----------|------------------------|
|           | 2-methyl-4-ethylhexane |

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| Structure   | Name |
|---|------|
| $\begin{array}{c} \text{H}_3\text{C} - \text{CH} - \text{CH}_3 \\   \\ \text{CH}_3 \end{array}$ |      |

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| Structure   | Name |
|---|------|
| $\begin{array}{c} \text{H}_3\text{C} - \text{CH} - \text{CH}_3 \\   \\ \text{CH}_2 - \text{CH}_3 \end{array}$ |      |

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| Structure  | Name |
|--|------|
| $\begin{array}{ccccccc} \text{H}_3\text{C} & -\text{CH}_2 & -\text{CH}_2 & -\text{CH} & -\text{CH}_2 & -\text{CH}_2 & -\text{CH}_3 \\ & & &   & & & \\ & & & \text{CH}_2 & -\text{CH}_3 & & \end{array}$ |      |

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| Structure   | Name |
|---|------|
| $\begin{array}{ccccccc} \text{H}_3\text{C} & -\text{CH}_2 & -\text{CH} & -\text{CH}_2 & -\text{CH} & -\text{CH}_2 & -\text{CH}_3 \\ & &   & &   & & \\ & & \text{CH}_3 & & \text{CH}_2 & -\text{CH}_2 & -\text{CH}_3 \end{array}$ |      |

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| Structure | Name                   |
|-----------|------------------------|
|           | 4-methyl-5-ethylhexane |

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| Structure | Name                    |
|-----------|-------------------------|
|           | 5-ethyl-4-propylheptane |

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| Structure | Name              |
|-----------|-------------------|
|           | 3,4-diethylhexane |

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| Structure | Name               |
|-----------|--------------------|
|           | 2,2-dimethylbutane |

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| Structure | Name                |
|-----------|---------------------|
|           | 2,4-dimethylpentane |

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