<table>
<thead>
<tr>
<th>Number of Carbons</th>
<th>Prefix</th>
<th>Examples using alkanes (-ane suffix)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Meth-</td>
<td>CH₄; Methane</td>
</tr>
<tr>
<td>2</td>
<td>Eth-</td>
<td>C₂H₆; Ethane</td>
</tr>
<tr>
<td>3</td>
<td>Prop-</td>
<td>C₃H₈; Propane</td>
</tr>
<tr>
<td>4</td>
<td>But-</td>
<td>C₄H₁₀; Butane</td>
</tr>
<tr>
<td>5</td>
<td>Pent-</td>
<td>C₅H₁₂; Pentane</td>
</tr>
<tr>
<td>6</td>
<td>Hex-</td>
<td>C₆H₁₄; Hexane</td>
</tr>
<tr>
<td>7</td>
<td>Hept-</td>
<td>C₇H₁₆; Heptane</td>
</tr>
<tr>
<td>8</td>
<td>Oct-</td>
<td>C₈H₁₈; Octane</td>
</tr>
<tr>
<td>9</td>
<td>Non-</td>
<td>C₉H₂₀; Nonane</td>
</tr>
<tr>
<td>10</td>
<td>Dec-</td>
<td>C₁₀H₂₂; Decane</td>
</tr>
</tbody>
</table>

**Systematic (IUPAC) Nomenclature Rules**

1. Identify the longest continuous chain of carbon atoms (Parent chain).
2. Number the carbons in the parent chain.
   a. Begin with the end closest to the substituent group (any group other than the parent chain).
3. Identify substituent groups, note the primary functional group (located along parent chain).
4. Assign "locations" of the substituent groups using the numbers on the carbons.

**Locant-Prefix-Parent-Suffix**

4-Ethyl-3-methyl-1-heptanol

**Drawing Mechanisms**

- Breaking a covalent bond
- Forming a covalent bond
- Lewis Acid
- Lewis Base

- The curved arrow indicates a movement of a pair of electrons from the tail to the head of the arrow.
- Each arrow represents the formation or destruction of a covalent bond.

**Rules for Resonance Forms**

1. Individual resonance forms are imaginary, not real. Think of it as an instantaneous snapshot.
2. Resonance forms differ only in the placement of π or non-bonding electrons.
3. Different resonance forms of compound don’t have to be equivalent.
4. Resonance forms obey normal rules of valency.
5. The resonance hybrid is more stable than any individual resonance form.

**Cahn-Ingold Prelog Rules for ranking substituents**

**Rule Description**

**Example**

**Degree of Unsaturation Calculation**

1. Add the number of halogens to the number of hydrogens in the given formula.
2. Ignore the number of oxygens.
3. Subtract the number of nitrogens from the number of hydrogens.
4. Determine the formula of the saturated hydrocarbon with the same number of carbons using the formula CₙH₂ₙ₊₂.
5. Subtract the resulting formula from the fully saturated formula.
6. Divide this number by 2 to obtain the degree of unsaturation.

8/2 = 4 degrees of unsaturation