CH_3CH_3	Ethane
$CH_3CH_2CH_3$	Propane
$CH_3CH_2CH_2$	Butane

Example 2: Homologous series of **carboxylic acids**-

Formula	**IUPAC Name**
HCOOH	Methanoic acid
CH_3COOH	Ethanoic acid
CH_3CH_2COOH	Propanoic acid
$CH_3CH_2CH_2COOH$	Butanoic acid

Characteristics of Homologous series:

1. Similar chemical structures: Members of a homologous series have similar chemical structures that differ by a repeated unit.
2. Regular progression of properties: Members of a homologous series exhibit a regular progression of physical and chemical properties with increasing molecular weight.
3. Easily distinguishable: Members of a homologous series can be easily distinguished by their molecular formula and the number of carbon atoms in the repeating unit.
4. Similar physical properties: Members of a homologous series have similar physical properties, such as boiling point and solubility, which change systematically as the size of the molecule increases.
5. Similar chemical reactivity: Members of a homologous series have similar chemical reactivity, such as the reactivity towards specific reagents, which changes systematically with increasing molecular weight.
6. Predictive power: Understanding the properties and reactivity of members of a homologous series can provide valuable information about the behavior of related compounds and help to predict the outcome of chemical reactions.
7. Systematic classification: The concept of homologous series provides a systematic way of describing and classifying organic compounds based on their structure and reactivity.