

The rest of the Semester

All of Chemistry

Today

Organic

Organic

You know more than you think already

What you will need
Lewis dot, VSEPR
VB, hybrid orbitals, MO
electronegativity
intermolecular forces

Step 1

Nomenclature

prefix

parent

suffix

parent is the name of the longest carbon chain. Each length has a given name

1 carbon methane

2 carbons ethane

5 carbons pentane

Step 1

Nomenclature

prefix

parent

suffix

prefix is the name of any substituent groups (sidechains)

1 carbon methyl

2 carbons ethyl

5 carbons pentyl

Step I

Nomenclature

prefix

parent

suffix

suffix is the name of the "functional group"

-ol alcohol

-one ketone

-ane alkane

Problem number I

Lots of carbon and hydrogen atoms
Pain to draw them all

(doc cam)

Names for parent groups

First lets look at alkanes
(essentially no functional group)

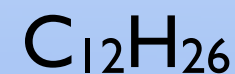
All single bonds

suffix is **ane**

meth**ane** but**ane** 5-methyloct**ane**

Name those carbon chains

Number of Carbons	Prefix	Structure
1	<i>Methane</i>	CH ₄
2	<i>Ethane</i>	CH ₃ CH ₃
3	<i>Propane</i>	CH ₃ CH ₂ CH ₃
4	<i>Butane</i>	CH ₃ (CH ₂) ₂ CH ₃
5	<i>Pentane</i>	CH ₃ (CH ₂) ₃ CH ₃
6	<i>Hexane</i>	CH ₃ (CH ₂) ₄ CH ₃
7	<i>Heptane</i>	CH ₃ (CH ₂) ₅ CH ₃
8	<i>Octane</i>	CH ₃ (CH ₂) ₆ CH ₃
9	<i>Nonane</i>	CH ₃ (CH ₂) ₇ CH ₃
10	<i>Decane</i>	CH ₃ (CH ₂) ₈ CH ₃
11	<i>Undecane</i>	CH ₃ (CH ₂) ₉ CH ₃
12	<i>Dodecane</i>	CH ₃ (CH ₂) ₁₀ CH ₃

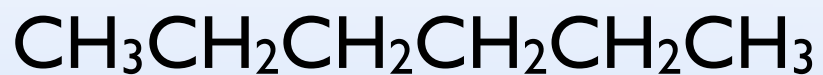


Name those sidechains



Number of carbon atoms	Formula	Name of alkane	Name of alkyl group	Formula
1	CH ₄	methane	methyl	CH ₃ —
2	CH ₃ CH ₃	ethane	ethyl	CH ₃ CH ₂ —
3	CH ₃ CH ₂ CH ₃	propane	propyl	CH ₃ CH ₂ CH ₂ —
4	CH ₃ (CH ₂) ₂ CH ₃	butane	butyl	CH ₃ (CH ₂) ₂ CH ₂ —
5	CH ₃ (CH ₂) ₃ CH ₃	pentane	pentyl	CH ₃ (CH ₂) ₃ CH ₂ —
6	CH ₃ (CH ₂) ₄ CH ₃	hexane	hexyl	CH ₃ (CH ₂) ₄ CH ₂ —
7	CH ₃ (CH ₂) ₅ CH ₃	heptane	heptyl	CH ₃ (CH ₂) ₅ CH ₂ —
8	CH ₃ (CH ₂) ₆ CH ₃	octane	octyl	CH ₃ (CH ₂) ₆ CH ₂ —
9	CH ₃ (CH ₂) ₇ CH ₃	nonane	nonyl	CH ₃ (CH ₂) ₇ CH ₂ —
10	CH ₃ (CH ₂) ₈ CH ₃	decane	decyl	CH ₃ (CH ₂) ₈ CH ₂ —
11	CH ₃ (CH ₂) ₉ CH ₃	undecane	undecyl	CH ₃ (CH ₂) ₉ CH ₂ —
12	CH ₃ (CH ₂) ₁₀ CH ₃	dodecane	dodecyl	CH ₃ (CH ₂) ₁₀ CH ₂ —

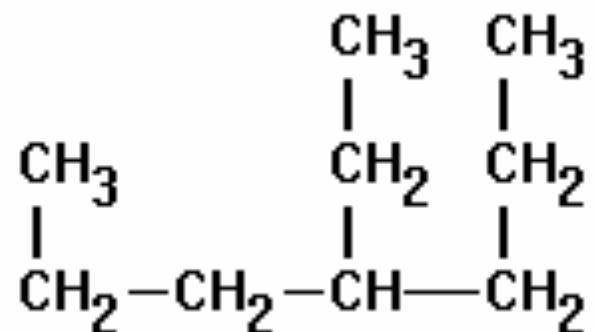
The following compound is



- A. butane
- B. isobutane
- C. pentane
- D. hexane
- E. heptane

What about sidechains?

The following compound is



- A. 3-ethylhexane
- B. 3-ethylpropane
- C. 4-propylhexane
- D. 4-ethylheptane**
- E. 3-ethylcatne

Which numbers do I use?

The next simplest
add a functional group

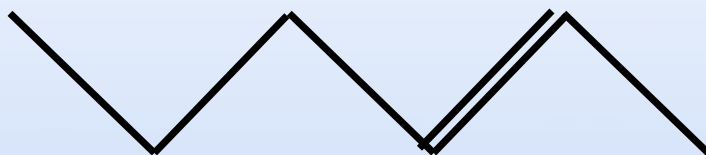
$C=C$ Double bond

suffix -ene

$C\equiv C$ Triple bond

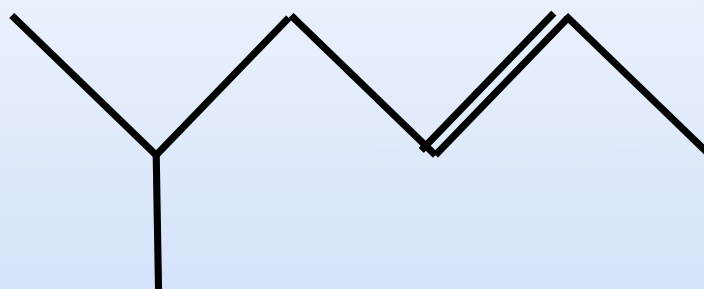
suffix -yne

The following compound is



- A. 2-hexene
- B. 3-hexene
- C. 4-heptene
- D. 4-hexene
- E. 2 methyl, butene

The following compound is



A. 5-methyl 2-hexene

B. 2-methyl 5-hexene

