

Constitutional Isomers of C₂H₆O

dimethyl ether	ethyl alcohol
<ul style="list-style-type: none"> • colorless gas • bp -25°C • mp -138°C • formerly used as an anesthetic • very unreactive, can be used as a solvent at low temperatures 	<ul style="list-style-type: none"> • clear liquid • bp 79°C • mp -114°C • active component in Iron City Beer • relatively reactive towards strong bases, oxidants
$\text{CH}_3\text{—O—CH}_3$ <p style="text-align: center;">- or -</p> $\begin{array}{c} \text{H} \quad \text{H} \\ \quad \\ \text{H—C—O—C—H} \\ \quad \\ \text{H} \quad \text{H} \end{array}$	$\text{CH}_3\text{—CH}_2\text{—OH}$ <p style="text-align: center;">- or -</p> $\begin{array}{c} \text{H} \quad \text{H} \\ \quad \\ \text{H—C—C—O—H} \\ \quad \\ \text{H} \quad \text{H} \end{array}$
Notice valency (# of bonds)	H, mono O, di C, tetra

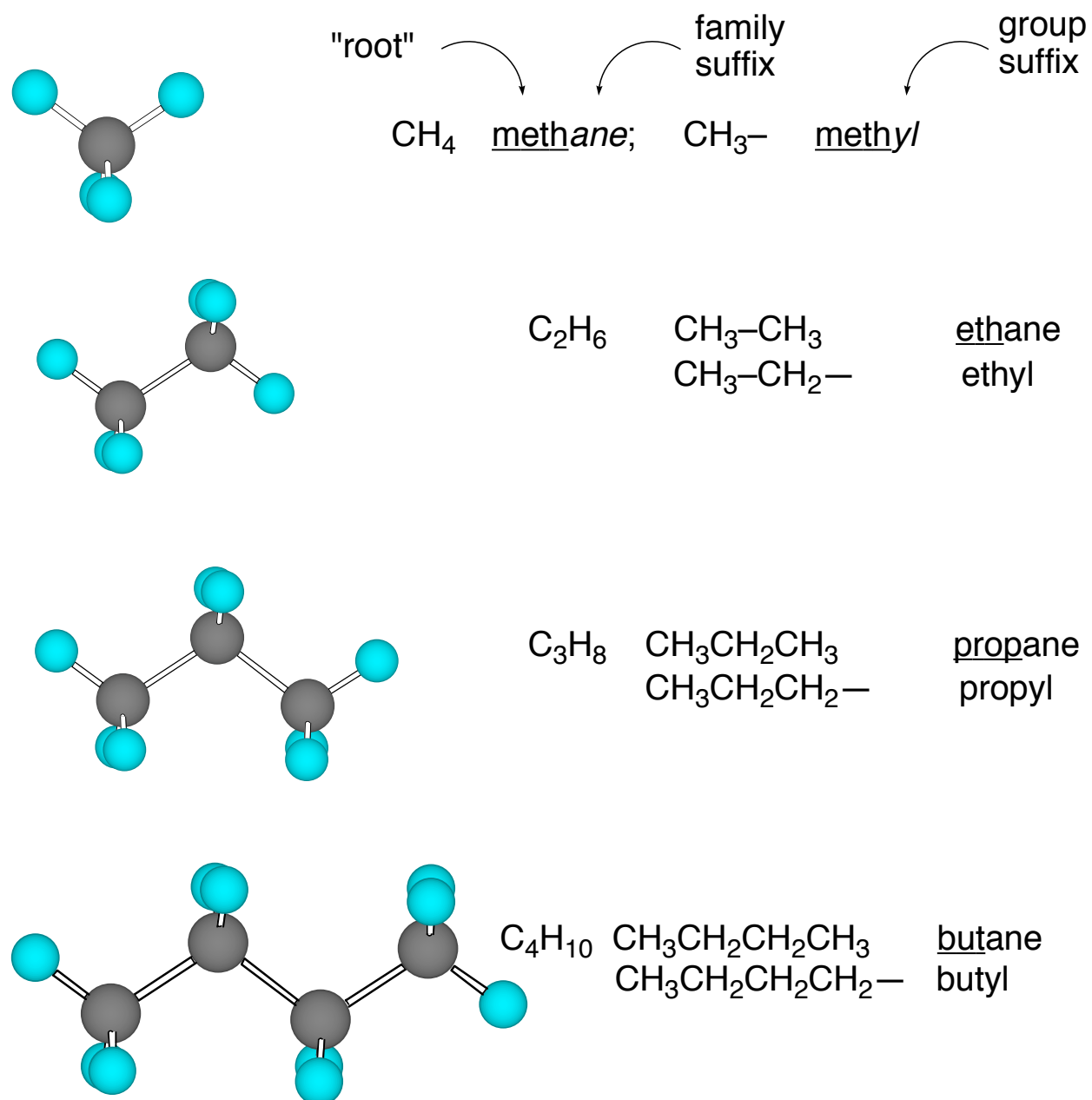
Alkanes and Cycloalkanes

Alkanes: general formula C_nH_{2n+2}

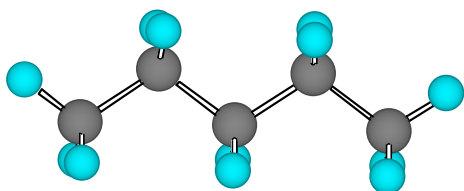
Cycloalkanes: general formula C_nH_{2n} (one ring), C_nH_{2n-2} (two rings), C_nH_{2n-4} (three rings), etc.

Unbranched alkanes:

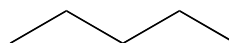
(normal alkanes, n-alkanes, "straight chain" alkanes)



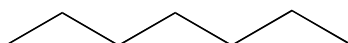
More Unbranched Alkanes (Homologs)



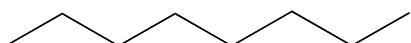
C_5H_{12} , $CH_3(CH_2)_3CH_3$, pentane



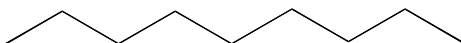
C_6H_{14} , $CH_3(CH_2)_4CH_3$, hexane



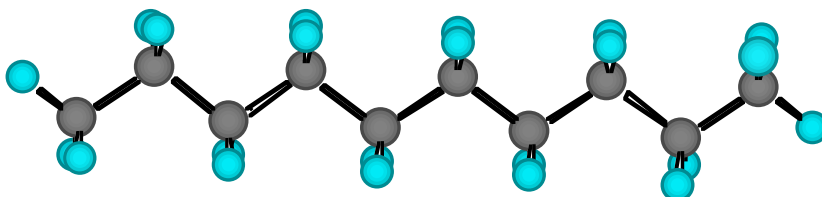
C_7H_{16} , $CH_3(CH_2)_5CH_3$, heptane



C_8H_{18} , $CH_3(CH_2)_6CH_3$, octane

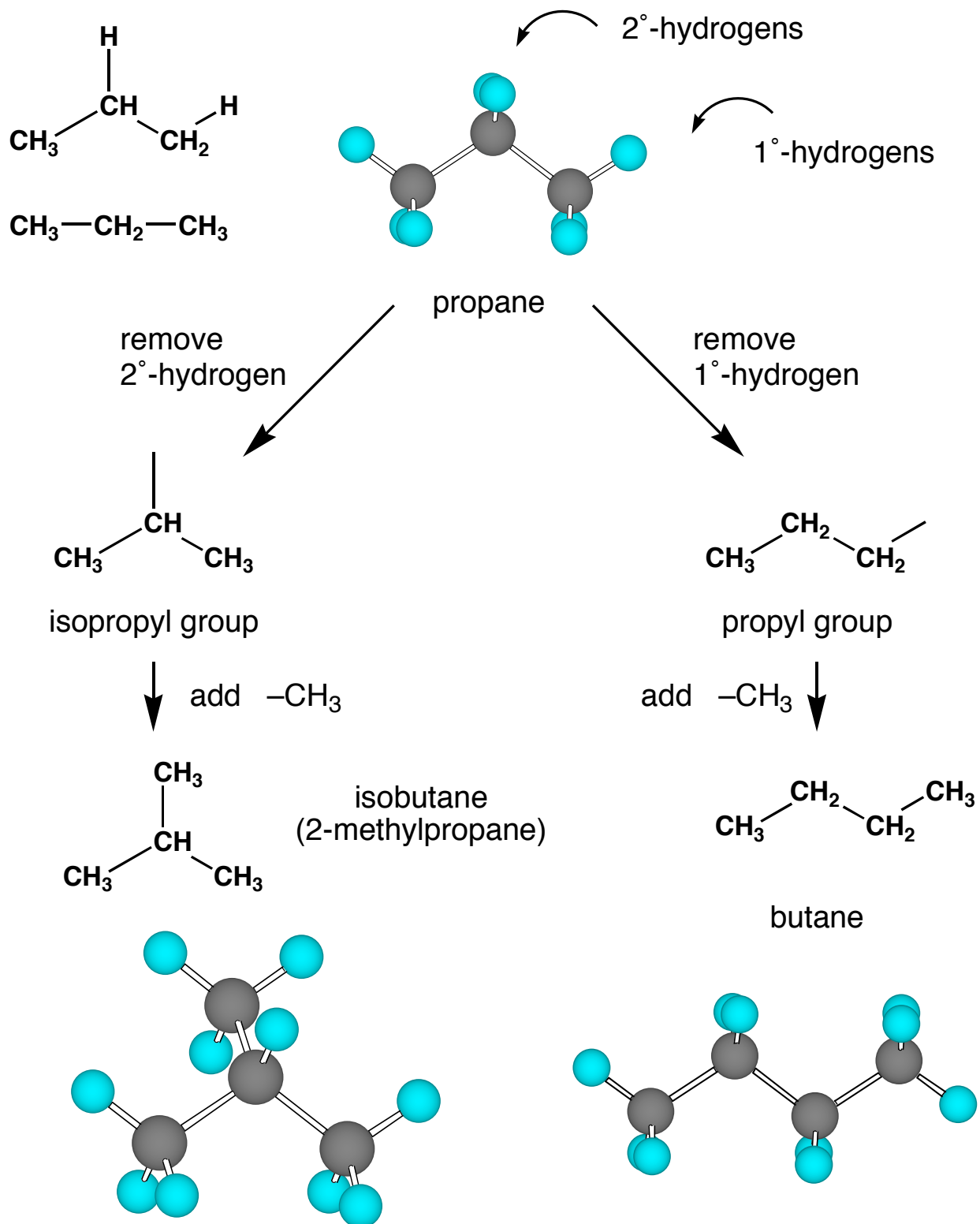


C_9H_{20} , $CH_3(CH_2)_7CH_3$, nonane

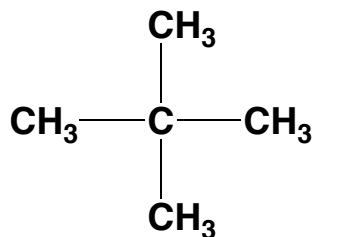
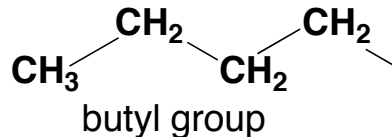
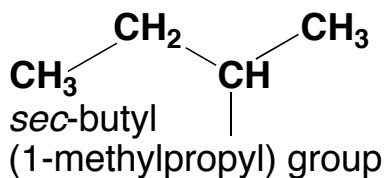
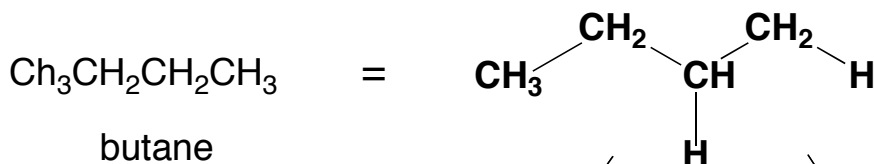


$C_{10}H_{22}$, $CH_3(CH_2)_8CH_3$, decane

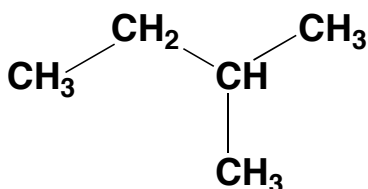
Making Homologous Alkanes by Formal Substitution of Hydrogen Atoms by Methyl Groups



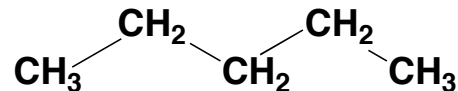
Constitutional Isomers of Pentane



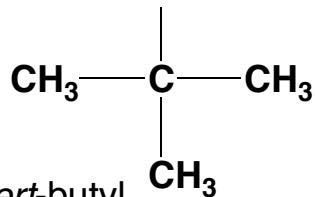
2,2-dimethylpropane
(neopentane)



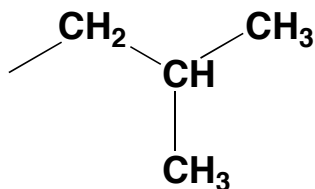
2-methylbutane
(isopentane)



pentane



tert-butyl
(1,1-dimethylethyl)
group



isobutyl
(2-methylpropyl)
group

