

Introduction to Organic Chemistry

In this unit we will be studying hydrocarbons. What two elements do you think is contained within **hydrocarbons**?

Activity:

Use the molecular model kits to build the following compounds. Each compound only has one correct way in which it can be built. If your model is correct, you will have no molecules left over and all bonds will be satisfied (all holes will be filled).

Once your compound is built, draw a quick sketch of it and record the number of double bonds in each structure.

Molecule	Formula	Sketch	# double bonds	# carbon atoms
methane	CH ₄			
ethane	C ₂ H ₆			
propane	C ₃ H ₈			
butane	C ₄ H ₁₀			
pentane	C ₅ H ₁₂			
hexane	C ₆ H ₁₄			
heptane	C ₇ H ₁₆			
octane	C ₈ H ₁₈			
nonane	C ₉ H ₂₀			
decane	C ₁₀ H ₂₂			

Molecule	Formula	Sketch	# double bonds	# carbon atoms
ethene	C_2H_4			
propene	C_3H_6			
butene	C_4H_8			
pentene	C_5H_{10}			
hexene	C_6H_{12}			
heptene	C_7H_{14}			
octene	C_8H_{16}			
nonene	C_9H_{18}			
decene	$C_{10}H_{20}$			

Compare propane with propene. Now compare decane and decene. What is the one major difference between the two?

Based on this, explain what you think the -ane and -ene endings mean in each case.

Compare ethane with ethene. What is the one major similarity between the two?

Based on this, explain what you think the eth- prefix means.

Fill out the following chart based on your results above.

Prefix	Number of carbons it represents
Meth-	
Eth-	
Prop-	
But-	
Pent-	
Hex-	
Hept-	
Oct-	
Non-	
Dec-	