Chapter: Carbon and Hydrocarbons
Section 4: Unsaturated Hydrocarbons

Unsaturated hydrocarbons: hydrocarbons in which not all carbon atoms have four single covalent bonds

- Carbon atoms do not have the maximum amount of hydrogen atoms

Alkenes: hydrocarbons that contain double covalent bonds

- Name the parent hydrocarbon
    - Longest continuous chain that contains the *double bond(s)*
    - Use the suffix *–ene*
    - Number the parent chain so the double bond has the lowest number
        - If there is more than one double bond, modify the suffix to indicate the number of double bonds
            - 2 = *-adiene*
            - 3 = *-atriene*
    - Add the names of the alkyl group
        - If the numbering from both ends gives equivalent positions, then number the carbons so the alkyl group has the lowest numbers
    - Punctuate the name (use hyphens)
    - Ethene:
        - Gas at R.T.
        - Plant hormone that aids in the ripening of fruits

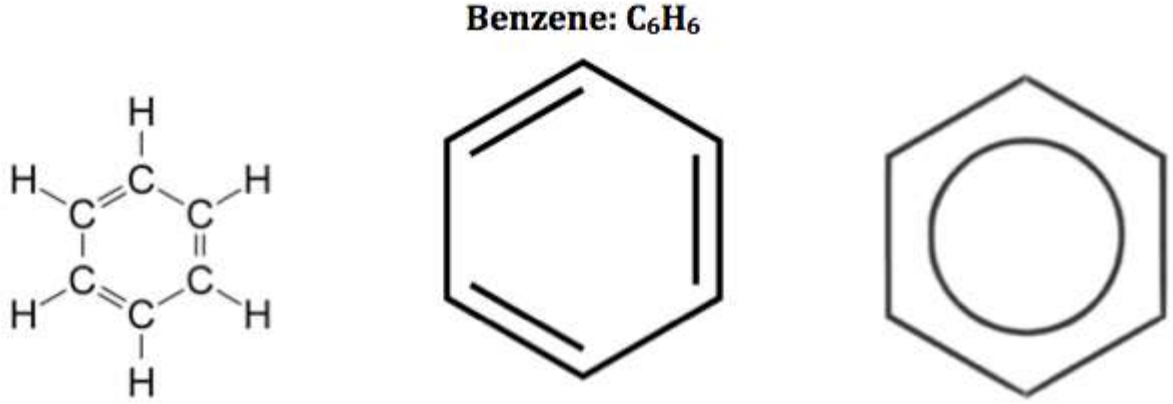
Alkynes: hydrocarbons with triple covalent bonds

- Follow the same rules as above with the alkenes except the suffix used is *–yne*
- Ethyne
    - Mixed with pure oxygen produces the intense heat of welding torches

Aromatic hydrocarbons: hydrocarbons with six-membered carbon rings and delocalized electrons

Benzene: the primary aromatic hydrocarbon

- Molecular formula is C_6H_6
    - Delocalized electrons spread over the ring and the bonds resonate



- Name the parent hydrocarbon
    - In this case, it is *benzene*
- Add the alkyl groups
    - Assign the position number to the alkyl group that comes 1st in alphabetical order
        - Then number so the alkyl groups have the lowest numbers

- Insert the position numbers
- Punctuate the name (use hyphens)