**Organic Chemistry Study Guide**

1. What is an organic compound?
   1. Give an example.
2. Any carbon needs how many valence electrons to be “satisfied”?
   1. How many sigma, or single bonds, should one carbon atom have if the Octet Rule is satisfied?
3. Write the chemical formula and draw the structure for propane and hexane.
   1. Write the chemical formula and draw the structure for propene and hexene.
   2. What’s the difference between propane and propene? Hexane and hexene?
4. Draw the following structures:
   1. 2-hexene
   2. 3-octyne
   3. 2,3-heptene
   4. pentene
5. Give the chemical formula and name for a-l.

alkanes

1. Look up and draw the following organic functional groups.
   1. Alcohol
   2. Ketone
   3. Ether
   4. Ester
   5. Carboxylic acid
   6. Aldehydes
   7. Amine
   8. Amide
   9. Thiol
2. **Answers**

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| --- | --- | --- | --- |
|  | **Chemical Formula** | **Name** | **Isomers** |
| a. | CH4 | Methane |  |
| b. | C2H6 | Ethane |  |
| c. | C3H8 | Propane |  |
| d. | C4H10 | Butane | E |
| e. | C4H10 | 2-methyl propane (isobutene) | D |
| f. | C5H12 | Pentane | G, H |
| g. | C5H12 | 2-methyl butane | F, H |
| h. | C5H12 | 2,2-dimethylpropane |  |
| i. | C6H14 | Hexane | J, K, L |
| j. | C6H14 | 2-methylpentane | I, K, L |
| k. | C6H14 | 3-methylpentane | I, J, L |
| l. | C6H14 | 2,2-dimethylbutane | I, J, K |