|  |  |  |
| --- | --- | --- |
|  | **Organic Chemistry** | Name:  Date: |
| Lewis Structure for Carbon:  A carbon atom has \_\_\_\_\_ valence electrons. | |

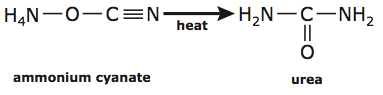
**Organic Compounds**

* Contain carbon atoms usually bonded to other carbon atoms and hydrogen atoms.
  + Called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Organic compounds may also contain: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Examples of organic compounds:

|  |  |
| --- | --- |
|  |  |
|  |  |
|  |  |

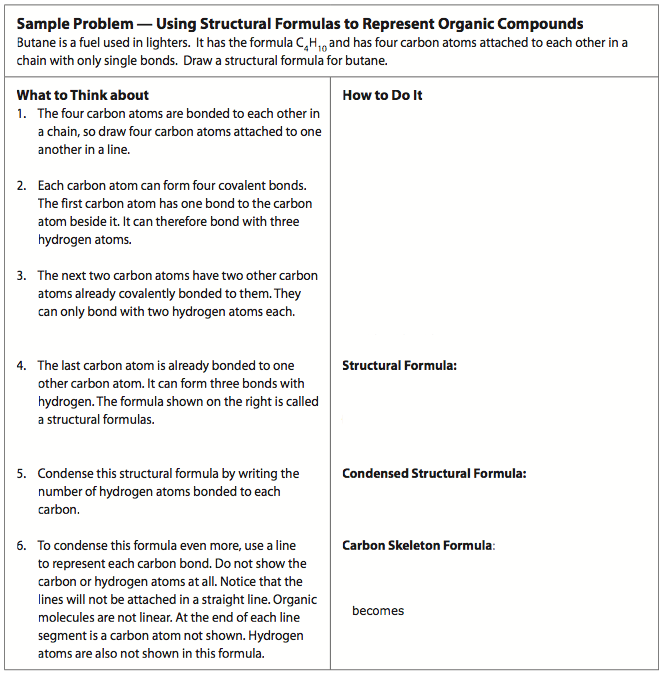
* *Scientists thought that organic compounds contained a “life force” or “vitality.*
* *Was proved incorrect in 1828 when an inorganic salt was heated to produce an organic compound.*



|  |
| --- |
| **Inorganic Carbon Compounds** |
| * Even if a compound contains carbon, it may not be classified as an organic compound. |

**Simple Hydrocarbons**

* Recall that a carbon has \_\_\_\_\_ valence electrons.
* Each carbon atom can form \_\_\_\_\_ covalent bonds.



|  |
| --- |
| **Alkanes** |




* Chemical Formula:

|  |  |  |
| --- | --- | --- |
| **# of C Atoms** | **Prefix** | **Alkane** |
| 1 |  |  |
| 2 |  |  |
| 3 |  |  |
| 4 |  |  |
| 5 |  |  |
| 6 |  |  |
| 7 |  |  |
| 8 |  |  |
| 9 |  |  |
| 10 |  |  |

**Problem Set:**

1. Write out the condensed structural formula for all 10 straight-chain alkanes.

1. Draw the carbon skeleton formula for all 10 straight-chain alkanes. (You cannot draw methane.)
2. Octane, a constituent of gasoline, has the molecular formula C8H18. Draw a structural formula, condensed structural formula and carbon skeleton formula for octane. Assume that the carbons are all bonded in a single chain to each other.
3. Draw a structural formula, condensed structural formula, and carbon skeletal formula for C6H12. Arrange the carbon atoms in a closed ring shape so that each carbon atom is bonded to two other carbon atoms.
4. What would the formula be for a straight chain alkane that had the following number of carbon or hydrogen atoms?

|  |  |
| --- | --- |
| * 1. 6 carbon atoms   2. 12 carbon atoms   3. 14 carbon atoms   4. 29 carbon atoms   5. 98 carbon atoms | * 1. 102 hydrogen atoms   2. 54 hydrogen atoms   3. 84 hydrogen atoms   4. 16 hydrogen atoms   5. 4 hydrogen atoms |