

## WS 10.2 Chemical Bonding in Alkanes

1. Hydrogen has how many outer-shell electrons? \_\_\_\_\_ Draw its electron dot formula: \_\_\_\_\_

2. Carbon has how many outer-shell electrons? \_\_\_\_\_ Draw its electron dot formula: \_\_\_\_\_

3. Carbon likes to have 8 outer shell electrons when it forms molecules. How many hydrogens are needed to make 1 carbon happy? \_\_\_\_\_

Draw the electron-dot formula for 1 carbon atom with the proper number of hydrogens surrounding it to give carbon a total of 8 outer shell electrons:

A covalent bond is formed by two shared electrons. Re-draw the carbon-hydrogen molecule, replacing the dots with bonds:

4. Complete the following **alkane** table: *WRITE SMALL!*

Name	# of carbons	chemical formula	structural formula	condensed formula
	1			
	2			
	3			
	4			
	5			
	6			
	7			
	8			
	9			
	10			

**WS 10.4 ORGANIC NAMING**

Name (yours): \_\_\_\_\_

Name	Complete structural formula	Line formula	Condensed structural formula	Mol. form
1) butane	$\begin{array}{cccc}   &   &   &   \\ -C & -C & -C & -C- \\   &   &   &   \end{array}$		CH <sub>3</sub> CH <sub>2</sub> CH <sub>2</sub> CH <sub>3</sub>	C <sub>4</sub> H <sub>10</sub>
2) heptane				
3) 2-fluorooctane				
4) 3-iododecane				
5) 1,1,1 - tribromo- 2,2 difluoropropane				
6)	$\begin{array}{cccc} & F & Cl & \\ &   &   & \\ -C & -C & -C & -C- \\ &   &   &   \end{array}$			
7)	$\begin{array}{cccc} & Br & Br & \\ &   &   & \\ -C & -C & -C & -C-Br \\ &   &   &   \end{array}$			
8)	$\begin{array}{ccccccc} & & & & CH_3 & & I \\ & & & &   & &   \\ -C & -C & -C & -C & -C & -C & -C- \\ &   &   &   &   &   &   \end{array}$			
9)				
10)				
11)				
12)		/		
13)			CH <sub>3</sub> CHFCHFCH <sub>2</sub> CH <sub>3</sub>	
14)			CBr <sub>3</sub> CHF(CH <sub>2</sub> ) <sub>4</sub> CH <sub>2</sub> CH <sub>3</sub>	
15)				CH <sub>4</sub>