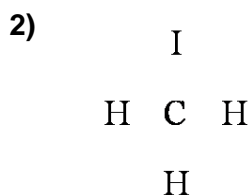


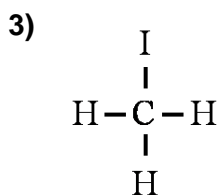
Lewis Structure How-To Sheet

- 1) **COUNT** the valence electrons
- 2) **PLACE** the atoms
 - Least electronegative element at the center (*except H, always on the outside*)
 - Put the remaining atoms around the central atom (*symmetrically if possible*)
 - Look for hints in how the formula is written (*HOOH or CH₃OH for examples*)
- 3) **SINGLE BOND** all atoms together (*nothing floats around by itself!*)
- 4) **FULL SHELL** to all atoms
 - Most things want 8 valence electrons (*octet rule*)
 - Careful with exceptions to the octet rule!
 - Add lone pairs to the outer atoms
 - Add lone pairs to the center atom
- 5) **COUNT AND FIX** if needed – may not need fixing!
 - Make sure you used the correct number of valence electrons (*from step #1*)
 - Used too few electrons? Add extra lone pairs to the central atom.
 - Used too many electrons? Fix it with double and triple bonds!
 - i. Find two atoms next to each other that can make multiple bonds
 - ii. Take a pair away from each of these atoms
 - iii. Put a new pair in-between them to make the new bond
 - iv. Repeat if needed until fixed (*try to keep symmetry in mind!*)

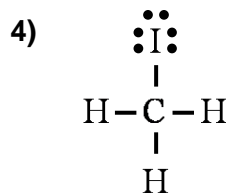
1) CH₃I 4 + 1 + 1 + 1 + 7 = 14 v.e



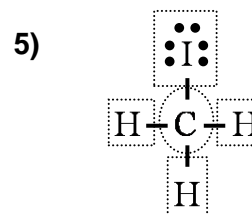
0 e⁻ used



8 e⁻ used, 6 e⁻ left



14 e⁻ used, 0 e⁻ left



each atom has full shell

# of Bonds Certain Atoms Like to Make		Common Exceptions to the Octet Rule*		BOND	SYMBOL	# OF SHARED e ⁻	Remember...
H <i>(always)</i>	1	ATOM	# e⁻	single	X — X	2	<ul style="list-style-type: none"> • Anything can be an exception to the octet rule if it needs to be! • <i>Usually</i> the atoms making multiple bonds will be C, N, O, S • Keep it simple! Things get weird in real life – focus on the patterns!
F, Cl, Br <i>(if not the central atom)</i>	1	H	2	double	X = X	4	
C, Si	4	B	6	triple	X ≡ X	6	
O <i>(if not the central atom)</i>	1 or 2	P	10				
		S	12				