

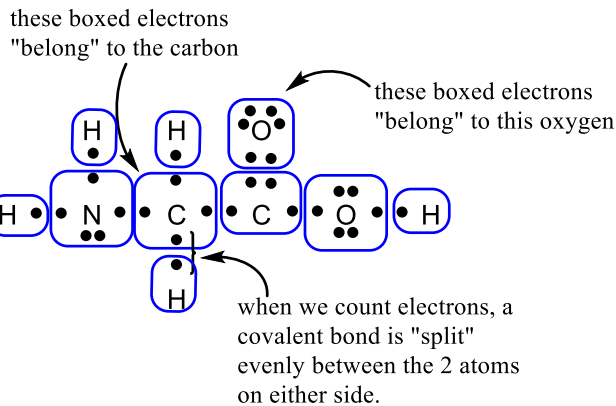
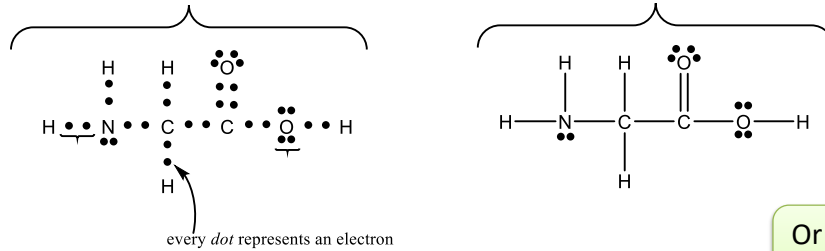


The periodic table of food, elements, ions and compounds

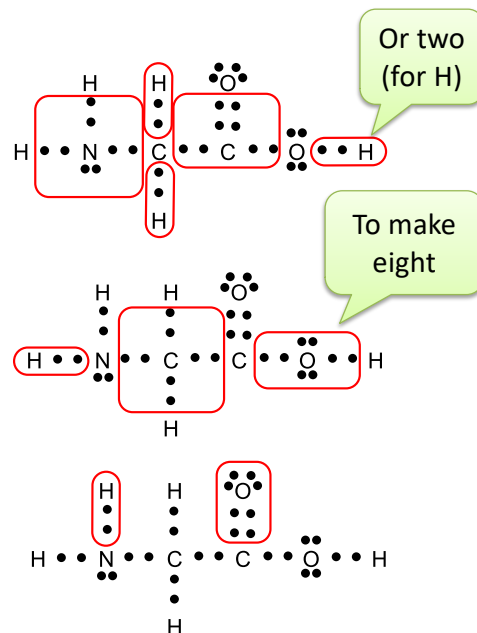
WHY EIGHT? (OR TWO...)



Two representations of the molecule glycine



Why do atoms share electrons?



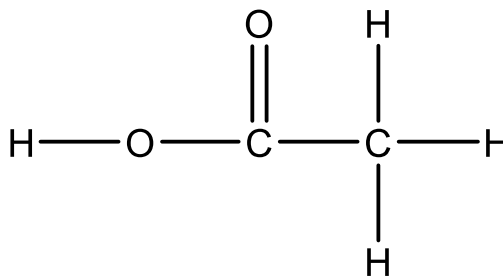


Why eight? (or two?)

	1 Group IIA									2
Period 1	1 H hydrogen									2
Period 2	3	4								10
	1	2								8
					5 B	6 C	7 N	8 O	9 F	
					3	4	5	6	7	



In the structure of acetic acid below, the covalent bonds are drawn in, but any *lone pairs* have been deliberately omitted. This is not uncommon practice for chemists – often molecules are drawn without the *lone pairs* explicitly shown; however, the *lone pairs* are still there. Draw in any lone pairs on the structure of acetic acid below. Acetic acid is the pungent odor of vinegar.



	1 Group IA	2 Group IIA									2
Period 1	1 H hydrogen										
Period 2	3	4									10
					5 B boron	6 C carbon	7 N nitrogen	8 O oxygen	9 F fluorine		
					3	4	5	6	7		



The structure of cysteine is drawn below. Cysteine is an important component of protein. Cysteine contains a sulfur atom – which has not been in any of our previous examples. However, sulfur is located right *below* oxygen on the periodic table – how can that information help you determine the number of lone pairs around sulfur? Using the line drawing below, fill in any and all *lone pairs* on all the atoms of cysteine.

Group III B	Group IV B	Group V B	Group VI B	Group VII B
5 B boron	6 C carbon	7 N nitrogen	8 O oxygen	9 F fluorine
13 Al aluminum	14 Si silicon	15 P phosphorus	16 S sulfur	17 Cl chlorine
31 Ga	32	33 As	34 Se	35 Br

