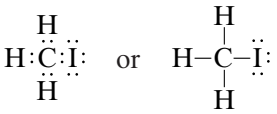
3. *Determine the total number of valence electrons available in the atoms to be combined.*

C	**1 × 4e^- =**	**4e^-**
I	**1 × 7e^- =**	**7e^-**
3H	**3 × 1e^- =**	**3e^-**
		14e^-

4. *Arrange the atoms to form a skeleton structure for the molecule. If carbon is present, it is the central atom. Otherwise, the least-electronegative atom is central (except for hydrogen, which is never central). Then connect the atoms by electron-pair bonds.*

5. *Add unshared pairs of electrons to each nonmetal atom (except hydrogen) such that each is surrounded by eight electrons.*



6. *Count the electrons in the structure to be sure that the number of valence electrons used equals the number available. Be sure the central atom and other atoms besides hydrogen have an octet.*
There are eight electrons in the four covalent bonds and six electrons in the three unshared pairs, giving the correct total of 14 valence electrons.

PRACTICE *Answers in Appendix E*

1. Draw the Lewis structure of ammonia, NH_3.
2. Draw the Lewis structure for hydrogen sulfide, H_2S.
3. Draw the Lewis structure for silane, SiH_4.
4. Draw the Lewis structure for phosphorus trifluoride, PF_3.

extension
Go to **go.hrw.com** for more practice problems that ask you to draw Lewis structures.
Keyword: HC6BNDX

Multiple Covalent Bonds

Atoms of some elements, especially carbon, nitrogen, and oxygen, can share more than one electron pair. A double covalent bond, or simply a *double bond,* is a covalent bond in which two pairs of electrons are shared between two atoms. A double bond is shown either by two side-by-side pairs of dots or by two parallel dashes. All four electrons in a double bond "belong" to both atoms. In ethene, C_2H_4, for example, two electron pairs are simultaneously shared by two carbon atoms.