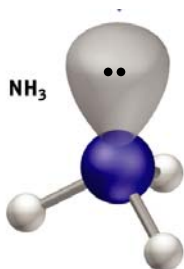


The text doesn't distinguish between the two levels of geometry of molecules. Here is a supplementary definition of the geometries as discussed in class.

The shapes of molecules (molecular geometry) as defined by Valence Shell Electron Pair Repulsion (VSEPR) theory are determined by the number of groups of electrons around the central atom. This can be summarized by examining the geometry at two levels:

1. The Electron Group Geometry is the shape determined by the placement of all the groups of electrons around a central atom. A group can include lone pairs as well as shared pairs in single double or triple bonds (i.e., a double bond is one group of electrons, the same as a single bond).
2. The Molecular Geometry is the shape determined by the placement of only the bonding groups of electrons around a central atom (single, double or triple bonds). The lone pairs are still an integral part of the shape but are not included in the description of the molecular geometry.

For example (also see section 7.6):



Electron group geometry is tetrahedral due to four pairs of electrons around the central nitrogen.

Molecular geometry is trigonal pyramidal if the lone pair of electrons is not included in the structure.