

## Section 9.3 Molecular Structures

In your textbook, read about Lewis structures.

For each statement below, write *true* or *false*.

- \_\_\_\_\_ 1. A structural formula shows the arrangement of the atoms in a molecule.
- \_\_\_\_\_ 2. The central atom in a molecule is the one with the highest electron affinity.
- \_\_\_\_\_ 3. In molecules, hydrogen is always a terminal atom.
- \_\_\_\_\_ 4. The number of bonding pairs in a molecule is equal to the number of electrons.
- \_\_\_\_\_ 5. To find the total number of electrons available for bonding in a positive ion, you should add the ion charge to the total number of valence electrons of the atoms present.
- \_\_\_\_\_ 6. The electrons in a coordinate covalent bond are donated by both the bonded atoms.
- \_\_\_\_\_ 7. Resonance occurs when more than one valid Lewis structure can be written for a molecule.
- \_\_\_\_\_ 8. Nitrate is an example of an ion that forms resonance structures.
- \_\_\_\_\_ 9. The carbon dioxide molecule contains two double bonds.
- \_\_\_\_\_ 10. All electrons in an atom are available for bonding.
- \_\_\_\_\_ 11. In the sulfate ion ( $\text{SO}_4^{2-}$ ), 32 electrons are available for bonding.
- \_\_\_\_\_ 12. When carbon and oxygen bond, the molecule contains ten pairs of bonding electrons.

In your textbook, read about resonance structures and exceptions to the octet rule.

For each item in Column A, write the letter of the matching item in Column B.

Column A	Column B
_____ 13. Odd number of valence electrons	a. $\text{O}_3$
_____ 14. Fewer than 8 electrons around an atom	b. $\text{BF}_3$
_____ 15. More than 8 electrons around central atom	c. NO
_____ 16. More than one valid Lewis structure	d. $\text{SF}_6$