Name
AP Chemistry
Lewis Dot

Objectives:
c. Students will be able to draw out Lewis Dot structures.
d. Students will be able to use a Lewis dot diagram to justify the sharing of electrons.
e. Students will be able to discriminate between bond qualities of various covalent compounds (bond energy, Length, order)
f. Students will be able to provide Resonance structures.

1. $\text{CO}_2$
   \[ \overset{0}{{\text{C}}} = \overset{0}{{\text{O}}} \]
   \[ \overset{0}{{\text{O}}} - \overset{0}{{\text{C}}} = \overset{0}{{\text{O}}} \]
   Domains: Bonded: 2, Non-bonded: 0, bond order 2

2. $\text{CO}_3^{2-}$
   \[ \left[ \overset{0}{{\text{O}}} - \overset{0}{{\text{C}}} = \overset{0}{{\text{O}}} \right]^{-2} \]
   Domains: Bonded: 5, Non-bonded: 2, bond order 3, sigma bonds: 3, pi bonds: 0, bond order 2

3. $\text{SO}_2$
   \[ \overset{0}{{\text{S}}} = \overset{0}{{\text{O}}} \]
   Domains: Bonded: 1/2, Non-bonded: 1, bond order 1/2, sigma bonds: 3, pi bonds: 0, bond order 1

4. $\text{CN}^-$
   \[ \left[ \overset{\text{0}}{\text{C}} = \text{N} \right]^{-1} \]
   sigma bonds: 1, pi bonds: 2, bond order 3

5. $\text{SF}_6$
   \[ \overset{0}{{\text{F}}} - \overset{0}{{\text{S}}} - \overset{0}{{\text{F}}} \]
   Domains: Bonded: 6, Non-bonded: 0, bond order 6

6. $\text{O}_2$
   \[ \overset{0}{{\text{O}}} = \overset{0}{{\text{O}}} \]

7. $\text{H}_2\text{O}_2$
   \[ \overset{0}{{\text{H}}} - \overset{0}{{\text{O}}} - \overset{0}{{\text{O}}} - \overset{0}{{\text{H}}} \]

8. $\text{CHCl}_3$
   \[ \overset{\text{i}}{\text{C}} - \overset{\text{i}}{\text{Cl}} \]
   Domains: Bonded: 3, Non-bonded: 0, bond order 3

9. $\text{SO}_3$
   \[ \overset{0}{{\text{S}}} = \overset{0}{{\text{O}}} \]
   Domains: Bonded: 2/3, Non-bonded: 0, bond order 2/3

10. $\text{CCl}_4$
    \[ \overset{\text{Cl}}{\text{C}} - \overset{\text{Cl}}{\text{C}} \]
    Domains: Bonded: 4, Non-bonded: 0, bond order 4