

## Quiz for Video 9 – Lewis Structures

- When drawing a Lewis diagram for a single atom, what number of "dots" are placed around the atom?
  - The total number of electrons
  - Only the core electrons
  - Only the valence electrons
  - Always 2
- Oxygen has 6 valence electrons but would like to access 8, to be isoelectronic with Neon. How many covalent bonds must oxygen form to do this?
  - 1
  - 2
  - 3
  - 4
- When assessing formal charge for atoms within a molecule, what value of formal charge suggests the most stable overall structure?
  - 1
  - +1
  - 0
  - +1/2 and -1/2
- Generally, a molecule can only be polar if it contains one or more polar bonds
  - True
  - False
- The octet rule states that atoms will generally want to have access to what number electrons in a Lewis structure?
  - 2
  - 4
  - 6
  - 8
- Which of the following Lewis structures features an octet rule exception (hint: draw each one out!)
  - SF<sub>4</sub>
  - CH<sub>4</sub>
  - H<sub>2</sub>O
  - NH<sub>3</sub>
- Which of the following is the most important rule when drawing a Lewis structure?
  - Adding exactly all the available valence electrons, and no more
  - Ensuring the octet rule is fulfilled
  - Minimizing formal charge
  - Making 4 bonds
- Hydrogen (H) is an exception to the octet and only wants to have access to two electrons. Because of this, how many bonds and lone pairs does H like to have?
  - 1 bond, 1 lone pair
  - 2 bonds, 0 lone pairs
  - 1 bond, 0 lone pairs
  - 0 bonds, 1 lone pair
- Carbon is the "backbone" of organic chemistry and will be featured extensively in Lewis structures. How many bonds and lone pairs does carbon prefer in a Lewis structure?
  - 0 bonds, 2 lone pairs
  - 2 bonds, 2 lone pairs
  - 4 bonds, 0 lone pairs
  - 4 bonds, 2 lone pairs
- Which of the following atoms can potentially take on an expanded octet?
  - Hydrogen (H)
  - Boron (B)
  - Carbon (C)
  - Sulfur (S)