Flow of Logic for Chapter 1 Concepts

**Classic Bonding and Structure**

- Electron configurations, Lewis dots, and the octet rule
  - number and kinds of bonds: single, double, triple
  - \( \Rightarrow \) VSEPR
    - structure
  - \( \Rightarrow \) hybridization
    - orbital alignment

  - \( \Rightarrow \) VBT & MOT
    - sigma and pi bonds
    - bond dipoles, molecular dipoles, quadrupoles
    - resonance

  - \( \Rightarrow \) polar covalent bonding

  - \( \Rightarrow \) induction
    - polarizability
    - steric

**Modern Bonding Theory**

- Electron configurations, and the octet rule
  - number and kinds of bonds: single, double, triple
  - \( \Rightarrow \) MOT only
    - delocalized molecular orbitals

- \( \Rightarrow \) QMOT
  - group orbitals
  - Walsh Diagrams
    - structure

  1) lower energy orbitals = induction and polarity
  2) get sigma and pi bonding systems, not localized
  3) HOMOs and LUMOs
  4) structure is obvious from electron count

  - polarizability
  - steric