

## Quiz for Video 14 – Molecular Geometry

- Adding the number of bonded plus non-bonded pairs gives the electron geometry of a central atom.
  - True
  - False
- Lone pairs have no effect on molecular geometry.
  - True
  - False
- How do double bonds contribute to the molecular geometry compared to a single bond?
  - Double bonds count for 2 electron domains
  - Double bonds have greater repulsion
  - Double bonds have greater electronegativity
  - Double bonds also behave the same, as a single electron domain
- Water and Carbon dioxide both contain identical polar covalent bonds. Why is water a polar molecule, while carbon dioxide is not?
  - Only water contains polar bonds
  - Only water has hydrogen
  - Water has a bent structure
  - Carbon dioxide has double bonds
- Ammonia ( $\text{NH}_3$ ) contains three bonds and one lone pair - what is the geometry of ammonia?
  - Trigonal Planar
  - Tetrahedral
  - Bent
  - Trigonal Pyramid
- Formaldehyde ( $\text{H}_2\text{CO}$ ) contains three bonded regions. What is the geometry of formaldehyde? (Hint: draw out the Lewis structure)
  - Trigonal Planar
  - Tetrahedral
  - Bent
  - Trigonal Pyramid
- Water has a tetrahedral electron geometry, but a bond angle of  $104.5^\circ$  which is less than the  $109.5^\circ$  for tetrahedral structures. Why?
  - Water is a special exception
  - Lone pairs repel more strongly than bonded pairs
  - Lone pairs have larger electronegativities than bonded pairs
  - Water has only 2 bonds
- Polarity of a molecule affects which of the following properties?
  - The physical state of a molecule
  - The electronegativity of the atoms
  - The electron geometry
  - The molar mass
- Why do we never need to consider the geometry around a hydrogen atom?
  - Hydrogen only makes one bond
  - Hydrogen is too small to be considered
  - Electrons determine the geometry, not hydrogen
  - Hydrogen is a gas at room temperature
- Which of the following molecules is improperly matched with its geometry?
  - $\text{CH}_4$  – tetrahedral
  - $\text{NF}_3$  – trigonal pyramid
  - $\text{H}_2\text{O}$  – bent
  - $\text{CO}_2$  – bent