

Section 9.4 Molecular Shape

In your textbook, read about the VSEPR model.

Circle the letter of the choice that best completes the statement.

- The VSEPR model is used mainly to
 - determine molecular shape.
 - write resonance structures.
 - determine ionic charge.
 - measure intermolecular distances.
- The bond angle is the angle between
 - the sigma and pi bonds in a double bond.
 - the nucleus and the bonding electrons.
 - two terminal atoms and the central atom.
 - the orbitals of a bonding atom.
- The VSEPR model is based on the idea that
 - there is always an octet of electrons around an atom in a molecule.
 - electrons are attracted to the nucleus.
 - molecules repel one another.
 - shared and unshared electron pairs repel each other as much as possible.
- The shape of a molecule whose central atom has four pairs of bonding electrons is
 - tetrahedral.
 - trigonal planar.
 - trigonal pyramidal.
 - linear.
- The shape of a molecule that has two covalent single bonds and no lone pairs on the central atom is
 - tetrahedral.
 - trigonal planar.
 - trigonal pyramidal.
 - linear.
- The shape of a molecule that has three single covalent bonds and one lone pair on the central atom is
 - tetrahedral.
 - trigonal planar.
 - trigonal pyramidal.
 - linear.

In your textbook, read about hybridization.

Use each of the terms below just once to complete the passage.

carbon	hybridization	sp^3	identical	methane
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The formation of new orbitals from a combination or rearrangement of valence electrons is called **(7)** _____. The orbitals that are produced in this way are **(8)** _____ to one another. An example of an element that commonly undergoes such formation is **(9)** _____. When this atom combines its three p orbitals and its one s orbital, the orbitals that result are called **(10)** _____. An example of a molecule that has this type of orbital is **(11)** _____.