

VSEPR Theory Quiz Answer Key PDF

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What does VSEPR stand for?

- A. Valence Shell Electron Pair Repulsion ✓**
- B. Valence Shell Electron Pair Rotation
- C. Valence Shell Electron Pair Reaction
- D. Valence Shell Electron Pair Reduction

Which molecular shapes can result from a molecule with five electron pairs around the central atom?

- A. Trigonal Bipyramidal ✓**
- B. Seesaw ✓**
- C. Tetrahedral
- D. Octahedral

What shape does a molecule with three bonding pairs and one lone pair have?

- A. Linear
- B. Trigonal Planar
- C. Trigonal Pyramidal ✓**
- D. Tetrahedral

Which of the following are limitations of VSEPR theory?

- A. Does not predict the exact bond angles ✓**
- B. Can not explain the shapes of large molecules ✓**
- C. Assumes all electron pairs are equivalent ✓**
- D. Accurately predicts molecular polarity

Which factor does NOT influence molecular shape according to VSEPR theory?

- A. Number of electron pairs ✓
- B. Electronegativity ✓
- C. Atomic mass
- D. Presence of lone pairs ✓

Which of the following molecules has a trigonal pyramidal shape?

- A. CH₄
- B. NH₃ ✓
- C. H₂O
- D. CO₂

Which molecules have a bent shape?

- A. H₂O ✓
- B. CO₂
- C. SO₂ ✓
- D. CH₄

Which of the following molecules is linear?

- A. H₂O
- B. CO₂ ✓
- C. NH₃
- D. CH₄

What are the key assumptions of VSEPR theory?

- A. Electron pairs repel each other ✓
- B. Electron pairs are attracted to lone pairs
- C. Electron pairs arrange to minimize repulsion ✓
- D. Electron pairs do not affect molecular shape

Which of the following shapes can result from a molecule with four electron pairs around the central atom?

- A. Tetrahedral ✓
- B. Trigonal Pyramidal ✓
- C. Bent ✓
- D. Linear

What is the ideal bond angle in a tetrahedral molecule?

- A. 90°
- B. 109.5° ✓
- C. 120°
- D. 180°

What factors can cause deviations from ideal bond angles?

- A. Lone pairs ✓
- B. Bond pairs
- C. Electronegativity differences ✓
- D. Atomic number

Which molecular shape is associated with a molecule that has two bonding pairs and no lone pairs?

- A. Bent
- B. Linear ✓
- C. Trigonal Planar
- D. Tetrahedral

In VSEPR theory, which type of electron pair causes more repulsion?

- A. Bond pair
- B. Lone pair ✓
- C. Both cause equal repulsion
- D. Neither causes repulsion