

## Molecular Geometry Quiz PDF

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**Which molecular geometry is characterized by a central atom with five bonding pairs?**

- Trigonal Bipyramidal
- Octahedral
- Square Planar
- Linear

**What is the molecular geometry of carbon dioxide (CO<sub>2</sub>)?**

- Bent
- Trigonal Planar
- Linear
- Tetrahedral

**Describe the difference between electron pair geometry and molecular geometry.**

**In VSEPR theory, what is the effect of lone pairs on bond angles?**

- Lone pairs increase bond angles
- Lone pairs have no effect on bond angles
- Lone pairs decrease bond angles
- Lone pairs double bond angles

**Which of the following molecules has an octahedral geometry?**

- SF<sub>6</sub>
- PCl<sub>5</sub>
- XeF<sub>4</sub>
- CH<sub>4</sub>

**Discuss how molecular geometry affects the polarity of a molecule.**

**Which of the following are considered when determining molecular geometry? (Select all that apply)**

- Number of bonding pairs
- Number of lone pairs
- Electronegativity
- Atomic mass

**What are the effects of lone pairs on molecular geometry? (Select all that apply)**

- They increase bond angles
- They cause deviations from ideal geometry
- They have no effect on geometry
- They reduce bond angles

**Which molecules have a bent shape? (Select all that apply)**

- H<sub>2</sub>O
- CO<sub>2</sub>
- SO<sub>2</sub>
- NH<sub>3</sub>

**Which theory is primarily used to predict molecular geometry?**

- Quantum Theory
- VSEPR Theory
- Molecular Orbital Theory

Kinetic Molecular Theory

**Which of the following shapes does water (H<sub>2</sub>O) have?**

- Linear
- Bent
- Trigonal Planar
- Tetrahedral

**What is the bond angle in a tetrahedral molecule?**

- 90°
- 109.5°
- 120°
- 180°

**Which of the following molecules have a linear geometry? (Select all that apply)**

- CO<sub>2</sub>
- HCN
- H<sub>2</sub>O
- BeCl<sub>2</sub>

**Provide an example of a molecule with a seesaw geometry and explain the factors that lead to this shape.**

**Why do lone pairs have a greater repulsive effect on bond angles compared to bonding pairs?**

**How does the presence of lone pairs influence the physical properties of a molecule, such as boiling point?**

**Explain how VSEPR theory is used to predict the shape of a molecule.**

**Which of the following molecules exhibit trigonal bipyramidal geometry? (Select all that apply)**

- $\text{PCl}_5$
- $\text{SF}_4$
- $\text{ClF}_3$
- $\text{XeF}_2$

**What are the characteristics of a trigonal planar molecule? (Select all that apply)**

- $120^\circ$  bond angles
- Three bonding pairs
- One lone pair

Flat shape

**Which of the following molecules has a trigonal pyramidal shape?**

- BF<sub>3</sub>
- NH<sub>3</sub>
- CH<sub>4</sub>
- H<sub>2</sub>O