# VSEPR: Using Lewis Structures and VSEPR to Determine Molecular Geometry

### **Post-Lab Questions**

Calculate the valence electrons for each compound and draw its Lewis structure. Predict the Electron Pair Geometry (draw and name it) and the Molecular Geometry (draw and name it) for each of the compounds given.

Compound Formula (Count the valence electrons and find the number of electron pairs.)	Draw the Lewis structure	Electron Pair Geometry Diagram/Name	Molecular Geometry Diagram/Name
CH <sub>4</sub> Ex: C: 4 × 1 = 4 H: $1 \times 4 = 4$ $8e^- \div 2$ or 4 Pairs	H	Tetrahedral	Tetrahedral
BCl <sub>3</sub>		Tetraneurar	
DC13			
SbCl <sub>6</sub> -			
PCl <sub>3</sub>			
TeF <sub>4</sub>			
NH4 <sup>+</sup>			
BeCl <sub>2</sub>			
AsH <sub>3</sub>			

© 2019, Flinn Scientific, Inc. All Rights Reserved. Reproduction permission is granted from Flinn Scientific, Inc. Batavia, Illinois, U.S.A. No part of this material may be reproduced or transmitted in any form or by any means, electronic or mechanical, including, but not limited to photocopy, recording, or any information storage and retrieval system, without permission in writing from Flinn Scientific, Inc.

## Covalent Bonding and Molecular Structure Worksheet

Draw the Lewis structure for each of the following compounds. Using VSEPR, determine the electron pair geometry, the molecular geometry, and the bond angle (in degrees) for each compound.

1. BeF<sub>2</sub>

Lewis Structure:	Electron Geometry:	Molecular Geometry:	Bond Angle(s):

#### 2. H<sub>2</sub>O

Lewis Structure:	Electron Geometry:	Molecular Geometry:	Bond Angle(s):

#### 3. BCl<sub>3</sub>

angle(s):

#### 4. NH<sub>3</sub>

Lewis Structure:	Electron Geometry:	Molecular Geometry:	Bond Angle(s):

#### 5. CH<sub>4</sub>

Lewis Structure:	Electron Geometry:	Molecular Geometry:	Bond Angle(s):

#### 6. XeF<sub>4</sub>

Lewis Structure:	Electron Geometry:	Molecular Geometry:	Bond Angle(s):

7. ClF<sub>5</sub>

Lewis Structure:	Electron Geometry:	Molecular Geometry:	Bond Angle(s):

## 8. ClF<sub>3</sub>

Lewis Structure:	Electron Geometry:	Molecular Geometry:	Bond Angle(s):

## 9. SF<sub>4</sub>

Lewis Structure:	Electron Geometry:	Molecular Geometry:	Bond Angle(s):

## 10. OF<sub>2</sub>

Lewis Structure:	Electron Geometry:	Molecular Geometry:	Bond Angle(s):