

EXPERIENTIAL LEARNING ACTIVITY

SUBJECT: CHEMISTRY

GRADE: XI

CHAPTER	CHEMICAL BONDING AND MOLECULAR STRUCTURE
TOPIC/CONCEPT	VSEPR THEORY
NAME OF THE ACTIVITY	Geometries of various molecules in three dimensions using Clay and Stick model.
TYPE OF ACTIVITY	GROUP ACTIVITY
LEARNING OUTCOME	After the completion of this activity, the students will be able to- • Comprehend the geometries of molecules in three-dimensions; • Predict geometries of various molecules using VSEPR Theory.
PROCEDURE/ METHODOLOGY	Experiment- Formation of molecular models using Clay and Stick. Construct the structures of the molecules of the type AB₂, AB₃, AB₄, AB₅, AB₆ with the help of sticks and clay. Clay will be used to make spheres which will represent various atoms at various positions. All the above types of molecules mentioned will be constructed with the help of clay and sticks.
QUESTIONS	• Why do different molecules have different geometries? • What is the full form of VSEPR Theory? • What will be the geometries of the following- BeCl₂, BH₃, CH₄, PCl₅, SF₆ • What will be the angle between C-H bonds in the molecules CH₄?
SOLUTIONS/ HINTS	• The greater the amount of lone pairs contained in a molecule, the smaller the angles between the atoms of that molecule. The VSEPR theory predicts that lone pairs repel each other, thus pushing the different atoms away from them, leading to their different geometries. • Valence Shell Electron Pair Repulsion Theory • BeCl₂. Linear • BH₃. Trigonal Planar • CH₄. Tetrahedral • PCl₅. Trigonal Pyramidal • SF₆. Octahedral • 109°28'