

Molecules and Geometry

Spoken Tutorial Project

<https://spoken-tutorial.org>

National Mission on Education through ICT

Radhika Yadav

FOSSEE, IIT Bombay

28 December 2022



Learning Objectives



Learning Objectives

We will learn, how to



Learning Objectives

We will learn, how to

- ▶ **Add and delete bonds and lone pairs**



Learning Objectives

We will learn, how to

- ▶ Add and delete bonds and lone pairs
- ▶ Identify different molecular geometries



Learning Objectives

We will learn, how to

- ▶ **Add and delete bonds and lone pairs**
- ▶ **Identify different molecular geometries**
- ▶ **Differentiate between electron and molecular geometries**



System Requirement



System Requirement

► macOS Catalina version 10.15.7



System Requirement

- ▶ **macOS Catalina version 10.15.7**
- ▶ **Google Chrome version 101.0.49**



Prerequisites



Prerequisites

- ▶ Learners should be familiar with topics in basic chemistry



Prerequisites

- ▶ Learners should be familiar with topics in basic chemistry
- ▶ Please use the link below to access the tutorials on PhET Simulations
<https://spoken-tutorial.org>



Link for PhET Simulation

- ▶ Please use the given link to download the PhET simulation
<https://phet.colorado.edu/en/simulations/molecule-shapes>



PhET Simulation

In this tutorial we will use,



PhET Simulation

In this tutorial we will use,

► **Molecule Shapes** PhET simulation



Assignment



Assignment

1. Molecule: Bent,
Electron: Tetrahedral
2. Molecule: Linear,
Electron: Trigonal Bipyramidal
3. Molecule: T-Shaped,
Electron: Octahedral



Assignment



Assignment

1. Check the geometries of all remaining molecules in the list
2. Compare their real and model-predicted bond angles
3. Explain the reasons for the differences



Summary

We have learnt, how to

- ▶ **Add and delete bonds and lone pairs**
- ▶ **Identify different molecular geometries**
- ▶ **Differentiate between electron and molecular geometries**



About the Spoken Tutorial Project

- ▶ Watch the video available at https://spoken-tutorial.org/What_is_a_Spoken_Tutorial
- ▶ It summarises the Spoken Tutorial project



About the Spoken Tutorial Project

- ▶ Watch the video available at https://spoken-tutorial.org/What_is_a_Spoken_Tutorial
- ▶ It summarises the Spoken Tutorial project
- ▶ If you do not have good bandwidth, you can download and watch it



Spoken Tutorial Workshops

The Spoken Tutorial Project Team

- ▶ Conducts workshops using spoken tutorials
- ▶ Gives certificates to those who pass an online test
- ▶ For more details, please write to contact@spoken-tutorial.org



Answers for THIS Spoken Tutorial

- ▶ Questions in THIS Spoken Tutorial?
- ▶ Visit <https://forums.spoken-tutorial.org>
- ▶ Choose the minute and second where you have the question
- ▶ Explain your question briefly
- ▶ The Spoken Tutorial project will ensure an answer



Acknowledgements

**The Spoken Tutorial project is
funded by the Ministry of Education,
Govt. of India**



Thank you

- ▶ This is Radhika Yadav, a FOSSEE summer fellow 2022, IIT Bombay signing off
- ▶ Thanks for joining

