

# Molecules and Geometry

Spoken Tutorial Project

<https://spoken-tutorial.org>

National Mission on Education through ICT

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# Learning Objectives



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**We will learn, how to**



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We will learn, how to

- ▶ Add and delete bonds and lone pairs



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- ▶ Identify different molecular geometries



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We will learn, how to

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



# System Requirement



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- ▶ macOS Catalina version 10.15.7



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



# Prerequisites



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- ▶ Learners should be familiar with topics in basic chemistry



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- ▶ 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



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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](https://spoken-tutorial.org/What_is_a_Spoken_Tutorial)
- ▶ It summarises the Spoken Tutorial project



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- ▶ 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](mailto: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

