

Editing Molecules

Talk to a Teacher

<http://spoken-tutorial.org>

National Mission on Education through ICT

<http://sakshat.ac.in>

Madhuri Ganapathi

IIT Bombay

25 July 2013



Learning Objectives



Learning Objectives

We will learn to



Learning Objectives

We will learn to

- **Add unbound electrons on an atom**



Learning Objectives

We will learn to

- Add unbound electrons on an atom
- Draw Carbonic acid and Sulphuric acid structures



Learning Objectives

We will learn to

- **Add unbound electrons on an atom**
- **Draw Carbonic acid and Sulphuric acid structures**
- **Add and modify a local charge on a group of atoms**



Learning Objectives



Learning Objectives

We will also learn to



Learning Objectives

We will also learn to

- **Add and modify a local charge on an atom**



Learning Objectives

We will also learn to

- Add and modify a local charge on an atom
- Add cyclic molecules



Learning Objectives

We will also learn to

- Add and modify a local charge on an atom
- Add cyclic molecules
- Convert monocyclic molecules to bicyclic molecules



System Requirement



System Requirement

- **Ubuntu Linux OS v 12.04**



System Requirement

- **Ubuntu Linux OS v 12.04**
- **GChemPaint v 0.12.10**



Pre-requisites



Pre-requisites

You should be familiar with



Pre-requisites

You should be familiar with

- **GChemPaint** chemical structure editor



Pre-requisites

You should be familiar with

- **GChemPaint** chemical structure editor
- If not, for relevant tutorials, please visit <http://spoken-tutorial.org>

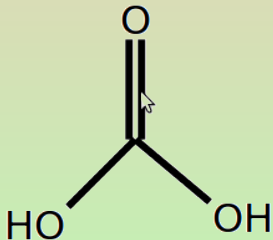


Assignment

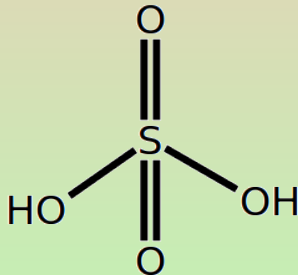
- 1 Draw Phosphorus trichloride structure (PCl_3)
- 2 Add a pair of un-bound electrons on the Phosphorus atom



Structures



Carbonic acid



Sulphuric acid



Assignment

- 1 Draw Nitric acid (HNO_3) structure
- 2 Show local charge on the Nitrate ion NO_3^-



Summary

We have learnt to

- Add unbound electrons on an atom
- Draw Carbonic acid and Sulphuric acid structures
- Add and modify a local charge on a group of atoms



Summary

We have also learnt to

- **Add and modify a local charge on an atom**
- **Add cyclic molecules**
- **Convert monocyclic molecules to bicyclic molecules**



Assignment

- 1 Add a seven membered cycle to the Display area
- 2 Change it to tricyclic compound



About the Spoken Tutorial Project

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



About the Spoken Tutorial Project

- Watch the video available at http://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



Acknowledgements

- Spoken Tutorial Project is a part of the Talk to a Teacher project
- It is supported by the National Mission on Education through ICT, MHRD, Government of India
- More information on this Mission is available at <http://spoken-tutorial.org/NMEICT-Intro>

