



Modeling Atomic Structure

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Science
Grades 6–8



Introduction

Engineers, we need you! Take your skills to modeling or creating models using technology to build a simple molecule. Students will then extend knowledge with critical thinking questions.

Learning Objectives

([MS-PS1-1](#)) WALT develop models to describe the atomic composition of simple molecules.

Materials Needed

- Chromebook/tablet/device
- Materials to build molecules - styrofoam balls, toothpicks, paint, etc.
- [Simple Molecule Lab Sheet](#)

Procedure

1. Before you begin the lab, have bins prepared with the necessary materials. This will save you a lot of time during the lesson.
2. Review all safety procedures before beginning the lab. Reference any anchor charts you have in the room.
3. Review atoms and atomic structure:
 - [Simple Molecules: Examples and Explanations \(video\)](#)
 - [What is a Molecule?](#)
 - [What is an Atom and a Molecule?](#)
4. Students will choose one simple molecule to create a three-dimensional model of. This can be done using a variety of mediums such as building one with materials or creating one on the computer.
5. Examples of simple molecules: Carbon Dioxide, Water, Nitrous Oxide, Carbon Monoxide, Ammonia, etc.
6. Students will complete questions #1 and #2 on the lab. They will sketch out the molecule they will be modeling and also write the elements that make up their molecule, as well as how many atoms of each make up the molecule.

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7. Students will create the three-dimensional model of their chosen simple molecule. Students may use materials to create a tangible model. This can also be done virtually as students could present the model using Flipgrid or take photos of it and upload into Google Classroom. You can use various sites to create a model online also such as:

- <http://biomodel.uah.es/en/DIY/JSME/draw.en.htm>
- <https://molview.org/>
- <https://chemagic.org/molecules/amini.html>

8. Students will then complete the rest of the extension questions on the lab. Question #6 is an online quiz. It has students explore more simple concepts about molecules and atoms. The answers are listed if you scroll down the quiz.

Evaluation

The point values of each activity are located next to the question on the lab sheet. This will count as a lab grade.