

Molecular Modeling

Summary

Students use molecular model kits to visualize molecule shapes, determine polarity of molecules, and to help them draw accurate Lewis structures for various molecules.

Main Core Tie

Science - Chemistry

[Standard 3 Objective 3](#)

Time Frame

1 class periods of 90 minutes each

Group Size

Pairs

Materials

- [student sheet](#)
(attached)
molecular modeling kits

Student Prior Knowledge

Shapes of molecules, knowledge of how to determine the number of valence electrons in an atom and then build a Lewis Dot Diagram, polarity and how to use electronegativities to determine the polarity of bonds and molecules.

Instructional Procedures

Show students molecular modeling kits and explain how to build models. Explain that the number of holes in each atom correspond to the number of electrons they must gain to form an octet. Each "spring" represents a shared pair of electrons. When a model is finished, there can't be any remaining springs that are only attached to one atom. Extra holes can be filled by constructing double or triple bonds.

Construct and show students models of several different shapes of molecules. Instruct them that, for more complicated molecules, they should determine the shape of the molecule around the atom with the most bonds (the central atom.)

On the board or overhead, work with the students to fill in the first one or two molecules on the worksheet.

Students will work in pairs (best) or groups of four and need one model kit per group, and a student page each.

Students will work together to construct their models, and to fill in the chart.

Students should focus on completing the molecular models and determining the shapes, as the rest can be filled in as homework without the model kits.

Bibliography

Lesson Design by Jordan School District Teachers and Staff.

Authors

