

VSEPR with Balloons

Recommended for Chapter(s): 13

Demo #042

Procedure

1. (Prep) Tie six balloons together. If you e-mail Darby (feldwinn@chem.ucsb.edu) a day in advanced she will have your balloon structure for you.
2. Using a pin pop one balloon at a time so the structure changes from octahedral to trigonal bipyramidal, to tetrahedral, to trigonal planer, to linear.

Clean Up

1. Return the materials to the cart in the demonstration library room.

Stockroom Notes

1. Return items to demonstration tub.
2. Return tub to the demonstration library.

Discussion

The theory behind valence shell electron pair repulsion (VSEPR) is that molecules are arranged so that there is a minimum of electron-electron repulsion. To achieve this, areas with high levels of electron density (lone pairs and bonds) are physically spread so they are located as far as possible from each other. This can be modeled by tying balloons together. The balloons will also orientate themselves so they are separated by as much room as possible. When there are 6 balloons the structure shows an octahedral geometry. When there are 5 balloons the structure shows a trigonal bipyramidal geometry. When there are 4 balloons the structure shows a tetrahedral geometry. When there are 3 balloons the structure shows a trigonal planer geometry. When there are 2 balloons the structure shows a linear geometry.

Materials for demo 042

1. 9 inch Balloons
2. Pins