

In this activity you will construct a model of various structures and ions using gumdrops to represent atoms and toothpicks to represent electrons.

Procedure:

1. DRAW A LEWIS STRUCTURE FOR THE FOLLOWING MOLECULES OR IONS:

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|---------------------------|-----------------------|--------------------|---------------------|
| A. SCl_2 | B. ICl_4^- | C. SF_4 | D. TeCl_4 |
| E. H_2O_2 | F. XeO_3 | G. RnCl_2 | H. ClF_3 |
| I. O_3 | J. SO_4^{2-} | K. SCN^- | L. SeF_5^- |

2. Using gumdrops to represent the atoms, and the following types of toothpicks to represent the electron pairs around the central atom only:

TOOTHPICKS AND ELECTRON TYPE/BONDING PAIR

- 3 TOOTHPICKS = TRIPLE BOND
- 2 TOOTHPICKS = DOUBLE BOND
- 1 TOOTHPICK = SINGLE BOND
- $\frac{1}{2}$ TOOTHPICK = FREE PAIR OF e^-

Construct a model of each of your Lewis structures above, showing the PROPER GEOMETRY and BOND ANGLES!

3. DRAW YOUR MODEL USING THE THREE DIMENSIONAL TECHNIQUES DEMONSTRATED IN CLASS AND WRITE:

- A. ELECTRON DOMAIN SHAPE OF THE MOLECULE OR ION
- B. MOLECULAR GEOMETRY OF MOLECULE OR ION
- C. BOND ANGLES ($=$, $<$, $>$ 90° , 120° , 180° , 109.5°)
- D. HYBRIDIZATION TYPE (sp , sp^2 , sp^3 , sp^3d , sp^3d^2)