

Download Exploration Guide Covalent Bonds

Simulate ionic bonds between a variety of metals and nonmetals. Select a metal and a nonmetal atom, and transfer electrons from one to the other. Observe the effect of gaining and losing electrons on charge, and rearrange the atoms to represent the molecular structure. Additional metal and nonmetal atoms can be added to the screen, and the resulting chemical formula can be displayed. In chemistry, orbital hybridisation (or hybridization) is the concept of mixing atomic orbitals into new hybrid orbitals (with different energies, shapes, etc., than the component atomic orbitals) suitable for the pairing of electrons to form chemical bonds in valence bond theory. Hybrid orbitals are very useful in the explanation of molecular geometry and atomic bonding properties and are ...

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(THF; see Table 8.2). Because THF can accept hydrogen bonds, it dissolves water and many alcohols. Because its dipole moment can interact favorably with other dipoles, it also dissolves. Although most recently reported covalent inhibitors are synthetic, a number of natural products have evolved that covalently modify cysteine residues in kinase ATP-binding sites (Liu et al., 2012a). One of the most well-characterized classes of covalent kinase inhibitors are the resorcylic acid lactones (RALs) with hypothemycin being the most well-known member (Sonoda et al., 1999).