

Bonding Models

Picture Vocabulary

C2D Bonding Models

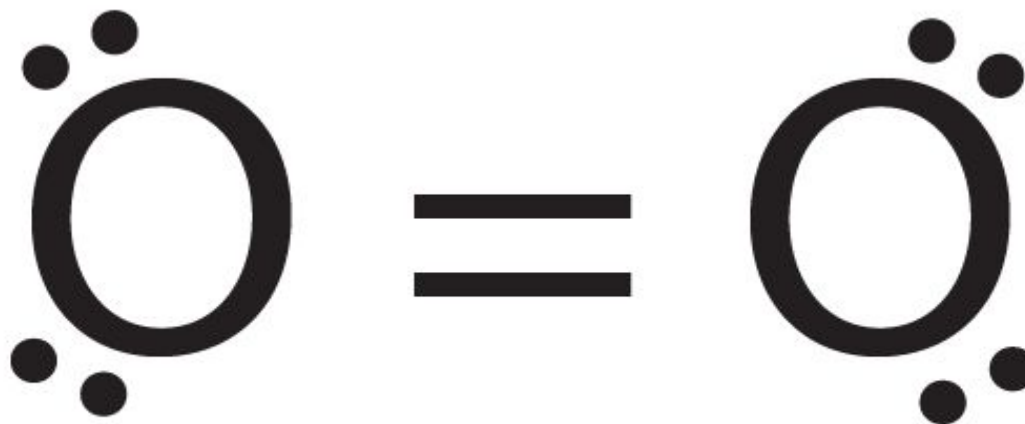
Lewis structure

Lewis Periodic Table Showing Outer Shell (Valence) Electrons

1	2	3	4	5	6	7	8
H•							•He•
Li•	•Be•	•B•	•C•	•N•	•O•	•F•	•Ne•
Na•	•Mg•	•Al•	•Si•	•P•	•S•	•Cl•	•Ar•
K•	•Ca•	•Ga•	•Ge•	•As•	•Se•	•Br•	•Kr•
Rb•	•Sr•	•In•	•Sn•	•Sb•	•Te•	•I•	•Xe•
Cs•	•Ba•						

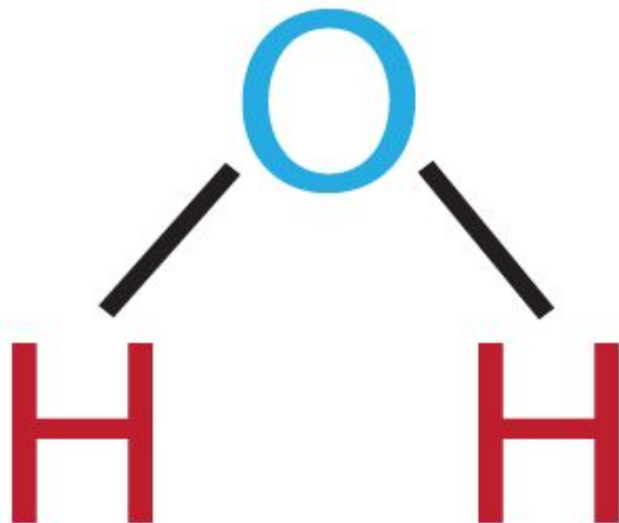
Shows an element's symbol surrounded by dots representing the element's valence electrons placed on the four sides of the symbol; also known as electron dot structure

Electron dot formula



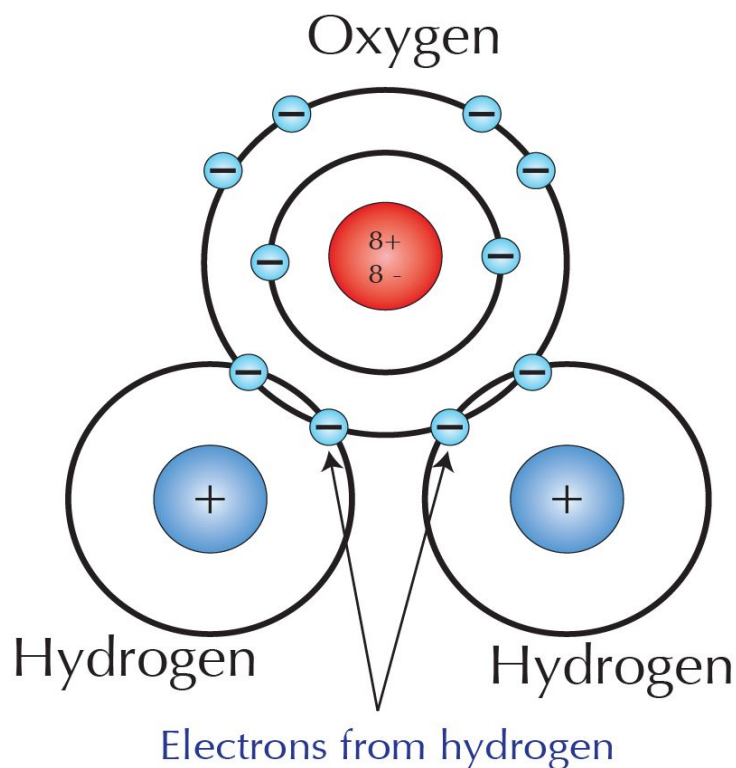
A notation that depicts valence electrons as dots around the atomic symbol of the element; also known as a Lewis dot formula

Structural formula



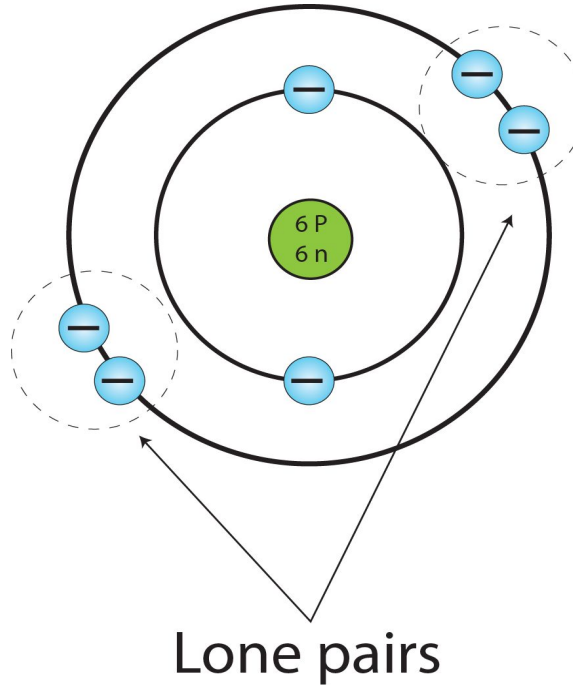
A chemical formula that shows the arrangement of atoms in a molecule or a polyatomic ion

Bonding pairs



The valence electrons in an atom that are bonded or shared with other atoms

Lone pair of electrons



Pairs of valence electrons that are not bonded to other atoms

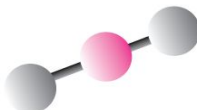
Molecular geometry

Geometry

Examples



HF, O₂



HgCl₂, CO₂



SO₂, O₃



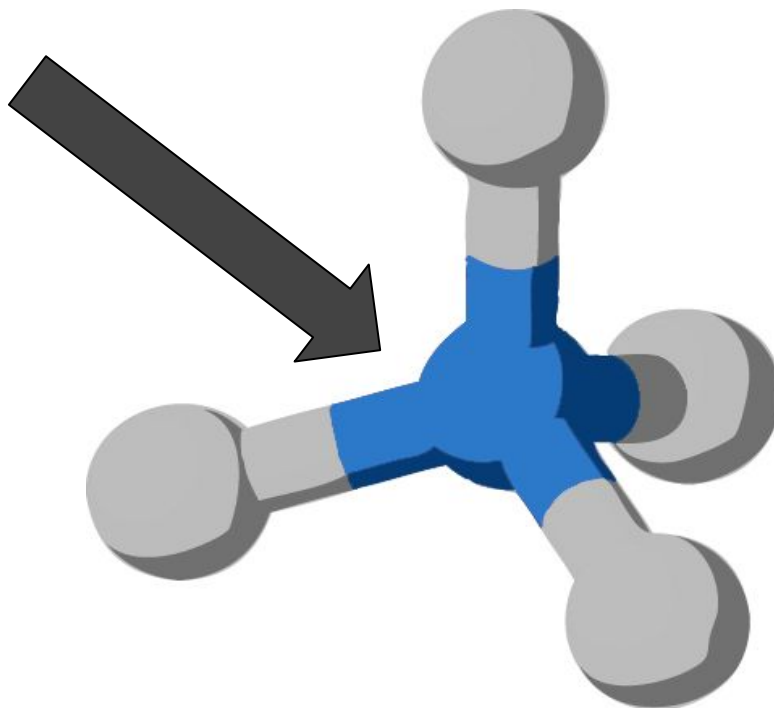
H₂O, OF₂



XeF₂

The arrangement of atoms in relation to the central atom of the molecule

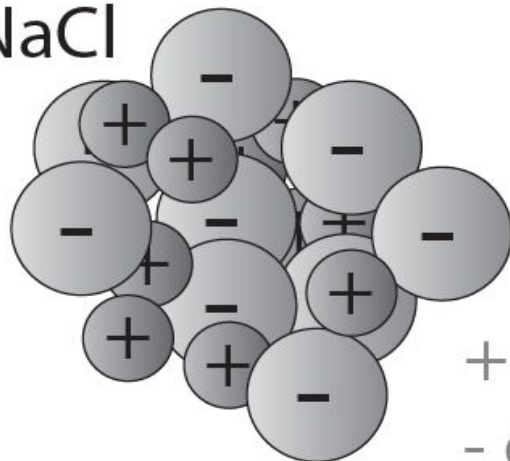
Central atom



The atom around which other atoms bond in a molecule

Ionic bond

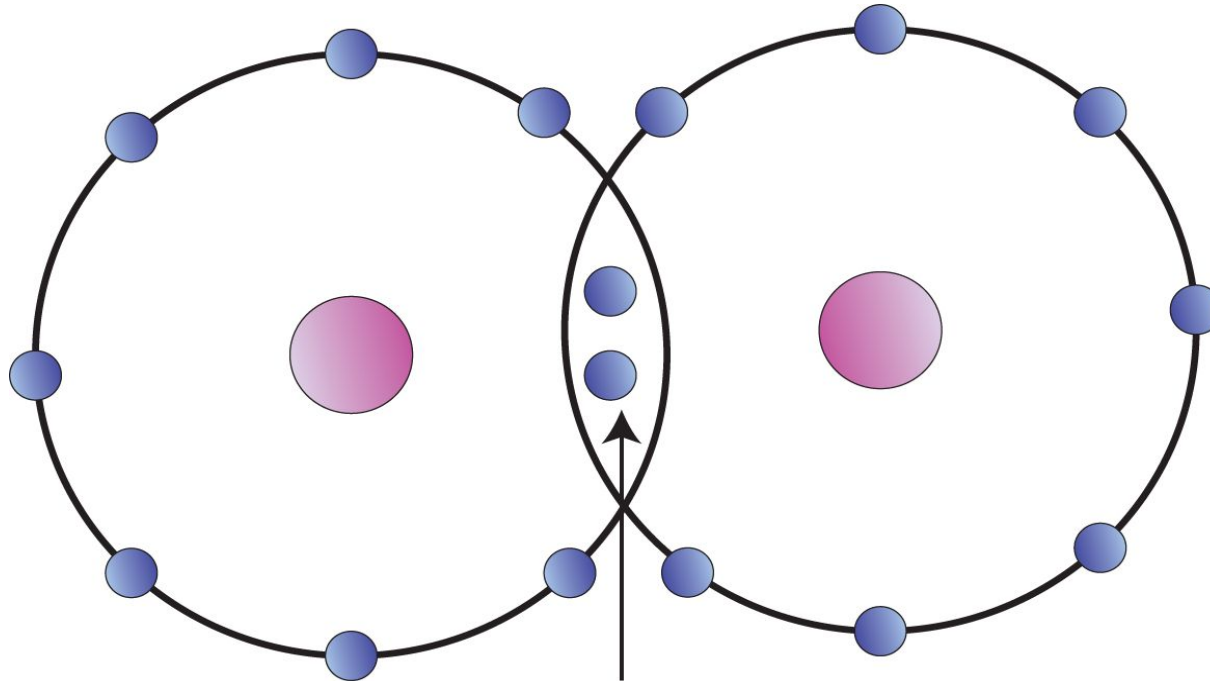
Ionic Bonding
in NaCl



+ sodium ions
- chloride ions

A form of chemical bonding that is characterized by the electrostatic attraction that binds oppositely-charged ions together

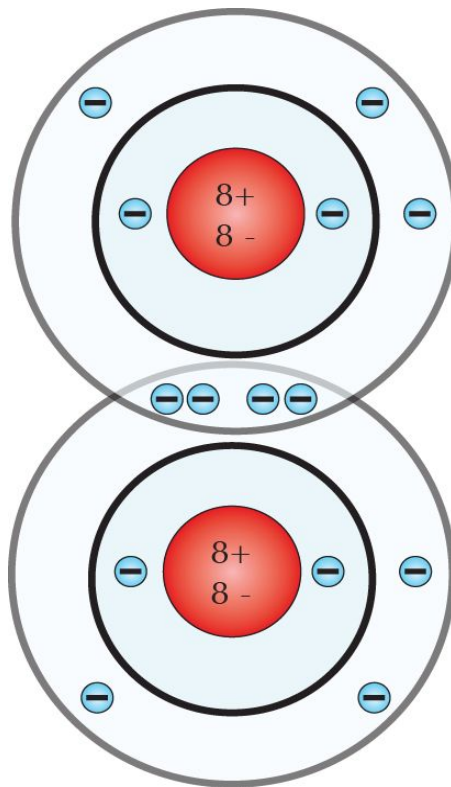
Covalent bond



Shared Electrons

A form of chemical bonding that is characterized by the sharing of pairs of electrons between atoms

Nonpolar covalent bond



Bonding in which two atoms equally share a pair of electrons with each other