

Name _____

Electrifying Bonds: Polar and Nonpolar Covalent Connections

Short Answer Key

1. Water (H_2O) is a polar molecule because oxygen (O) is more electronegative than hydrogen (H), leading to an uneven distribution of electrons and charge separation.
2. Oxygen gas (O_2) is considered a nonpolar molecule because both oxygen atoms have the same electronegativity, resulting in equal sharing of electrons.
3. The difference in electronegativity between atoms determines whether a polar or nonpolar covalent bond forms. Greater differences lead to polar bonds, while smaller differences result in nonpolar bonds.
4. A typical property of polar molecules is their ability to dissolve in water, while a typical property of nonpolar molecules is their lower solubility in water.
5. In a nonpolar covalent bond, there is an even distribution of electrons, resulting in no charge separation within the molecule.

