

Name _____

Polarity Power: How It Shapes Molecule Magic

Short Answer Key

1. Polarity in molecules arises from differences in electronegativity between atoms in covalent bonds. It results in a partial positive charge on one atom and a partial negative charge on the other.
2. Example of a polar molecule: Water (H_2O). Example of a nonpolar molecule: Carbon dioxide (CO_2). Water is polar due to the unequal sharing of electrons, while CO_2 is nonpolar as electrons are shared equally.
3. Water's polarity leads to hydrogen bonding, high surface tension, and its role as a universal solvent, making it crucial for life processes and sustaining ecosystems.
4. A molecule's polarity determines its solubility in solvents. Polar molecules dissolve in polar solvents, while nonpolar molecules dissolve in nonpolar solvents.
5. The ability to form hydrogen bonds allows polar molecules to have stronger intermolecular attractions, making them more reactive in chemical reactions involving hydrogen bonding.

