Name: _____ **Date:** _____

Dare to Bond: Can You Master 6th Grade Molecular Magic?

Visualize how atoms exchange and share life's fuel through a strategic mix of predictive modeling and pattern recognition challenges.

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1. In the crystal structure of Potassium Bromide (KBr), a transfer of one electron creates a bond between a metal and a non-metal. What type of bond is this?

A. Covalent Bond
B. Ionic Bond
C. Metallic Bond
D. Magnetic Bond

2. When two Nitrogen atoms join to form nitrogen gas (N2), they stay together by ____ valence electrons.

A. Stealing
B. Sharing
C. Destroying
D. Repelling

3. True or False: In a piece of solid Aluminum, the electrons are 'delocalized,' meaning they move freely around many different nuclei.

A. True
B. False

4. Silver (Ag) is highly malleable, meaning it can be hammered into thin sheets without breaking. Which bonding property allows this?

A. Brittle ionic lattices
B. Rigid covalent networks
C. Mobile metallic 'sea' of electrons
D. Weak gravitational pull

5. The substance Ammonia (NH3) is held together by covalent bonds. This means the compound is classified as a ____.

A. Metal
B. Ion
C. Lattice
D. Molecule

6. True or False: Ionic compounds like Lithium Chloride usually have very low melting points and turn into liquids at room temperature.

A. True

B. False

7. Why do atoms bother to form bonds in the first place?

A. To increase their radioactivity
B. To create more empty space
C. To reach a stable, full outer electron shell
D. To change their number of protons

8. In the compound Sulfur Dioxide (SO_2), atoms are sharing electrons. Based on the Periodic Table, Sulfur and Oxygen are both ____.

A. Metals
B. Gases
C. Non-metals
D. Noble Gases

9. True or False: Oxygen gas (O_2) contains a double bond, which means the two atoms share four electrons total.

A. True
B. False

10. If an atom of Beryllium (Group 2) loses 2 electrons to become stable, what will its charge be?

A. -2
B. +2
C. 0
D. +4