Name: _____ Date: _____

Molecular Chef: A 5th Grade Secret Recipe for Chemical Bonding

Crack the code of atomic attraction by analyzing why certain elements team up to build the world around us.

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1. Imagine you are building a crystal of Potassium Iodide (KI). If the Potassium atom throws an electron to the Iodine atom like a hot potato, what type of 'atomic glue' is holding them together?

A. A covalent bond
B. An ionic bond
C. A metallic bond
D. A magnetic spark

2. In a molecule of Oxygen gas (O2), two oxygen atoms are 'shaking hands' to share two pairs of electrons. This partnership is specifically called a _____ bond.

A. Double covalent
B. Single ionic
C. Triple metallic
D. Static electric

3. In a piece of solid Aluminum foil, the electrons are locked strictly in place and cannot move between atoms.

A. True
B. False

4. Why do atoms bother to bond in the first place? Think about a ball rolling down a hill to its resting spot.

A. To gain more electrons than any other atom
B. To become hotter and more energetic
C. To reach a stable state with a full outer shell
D. To turn into different elements

5. If you dissolve a substance in water and it can then conduct electricity (meaning it has charged parts that move), it most likely used _____ bonding.

A. Covalent
B. Organic
C. Ionic
D. Invisible

6. Water (H2O) is a molecule where electrons are shared unevenly, making one side slightly more negative than the other.

A. True
B. False

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7. Silver (Ag) is very 'malleable,' meaning it can be hammered into thin sheets without snapping. Which bonding feature allows the atoms to slide past each other?

A. The rigid lattice of ionic crystals
B. The tight grip of covalent sharing
C. The flexible 'sea' of shared electrons
D. The magnetic repulsion of the nuclei

8. Nitrogen gas makes up most of our air. Each Nitrogen atom shares 3 pairs of electrons with another Nitrogen atom. This is known as a _____ bond.

A. Triple
B. Single
C. Quintuple
D. Ionic

9. A mystery substance has a very high melting point and looks like a tiny cube under a microscope. When it's a solid, it doesn't conduct electricity. What is it?

A. A covalent gas
B. A metallic liquid
C. An ionic crystal
D. A magnetic alloy

10. Covalent bonds usually form between two non-metal atoms.

A. True
B. False