Grading sheet.

Bonding concepts

1. Most atoms are chemically bonded to other atoms.
2. The three major types of chemical bonding are ionic, covalent, and metallic.
3. In general, atoms of metals bond ionically with atoms of nonmetals, atoms of metals bond metallically with each other, and atoms of nonmetals bond covalently with each other.
4. Atoms in molecules are joined by covalent bonds.
5. The bond length between two atoms in a molecule is the distance at which the potential energy of the bonded atoms is minimized.
6. The octet rule states that many chemical compounds tend to form bonds so that each atom—by gaining, losing, or sharing electrons—shares or has eight electrons in its highest occupied energy level.
7. A single bond is a covalent bond in which a pair of electrons is shared between two atoms. Covalent bonds with more than one pair of shared electrons are called *multiple bonds.*
8. Bonding within many molecules and ions can be indicated by a Lewis structure. Molecules or ions that cannot be correctly represented by a single Lewis structure are represented by resonance structures.
9. An ionic compound is a three-dimensional network of positive and negative ions that are mutually attracted to one another.
10. Because of the strong attraction between positive and negative ions, ionic compounds tend to be harder and more brittle and to have higher boiling points than materials containing only covalently bonded atoms.
11. Polyatomic ions are charged groups of atoms held together by covalent bonds.
12. Metallic bonding is a type of chemical bonding that results from the attraction between metal atoms and mobile electrons floating in a conduction band between metal atoms.
13. In metallic bonding, the lack of a band gap between valence and conduction bands gives metals their properties of high electrical conductivity, malleability, ductility, and luster.
14. Intermolecular forces, such as dipole-dipole forces and London dispersion forces, exist between certain types of molecules. Hydrogen bonding is a special case of dipole-dipole forces.

Name:_____ Period: _____ Date :_____

Vocabulary
Total number of vocabulary words used: ___/35

Extra credit
Number of vocabulary words over requirement____ × ¼ = ____

Introduction
- chemical bond
- covalent bonding
- ionic bonding
- metallic bonding
- non-polar covalent bonding
- polar
- polar-covalent bonding

Covalent bonding
- bond energy
- bond length
- chemical formula
- diatomic molecule
- double bond
- electron dot notation
- Lewis structure
- lone pair electrons
- molecular compound
- molecular formula
- molecule
- octet rule
- resonance
- single bond
- structural formula
- triple bond
- unpaired electrons

Ionic
- formula unit
- ionic compound
- lattice energy
- polyatomic ion

Metallic
- band gap

- conduction band
- ductility
- electrical conductivity
- heat of vaporization
- luster
- malleability
- thermal conductivity
- valence band

Intermolecular forces

- dipole
- hydrogen bonding
- instantaneous dipole-dipole attraction
- intermolecular force
- London dispersion force
- molecular polarity
- permanent dipole-dipole attraction