

## **IPS HONORS, CHEMISTRY UNIT REVIEW SHEET 2009-10**

This is a ~50-point test, part scan-tron, part short-answer. You will be provided with a periodic table. **NO NOTECARDS ARE ALLOWED!**

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- Be able to describe an atom and its components (protons, neutrons, electrons).
- Know the relative size and charges of protons, neutrons, electrons.
- Be able to interpret an element key (atomic #, symbol, atomic mass, # protons, # electrons in an atom, # neutrons).
- How is atomic mass different from mass number?
- How and why are periods and groups/families different from each other yet similar to themselves?
- Know the different characteristics of metals, nonmetals, metalloids. Be able to identify on the periodic table.
- Ductile vs. malleable.
- Understand physical vs. chemical properties, physical vs. chemical changes.
- Be able to identify and draw Bohr models of atoms.
- Periodic patterns of valence shells, valence electrons, periods, groups.
- Know the differences between alpha, beta, and gamma decay.
- How are alpha, beta, and gamma particles/rays different (sizes, charges, harmfulness).
- Be able to determine the product of alpha or beta decay (including mass).
- Be able to explain why some elements are radioactive and why some aren't.
- How are atoms, elements, and compounds different from each other?
- What is a chemical bond? What are the three types of chemical bonds and how are they formed?
- Be able to combine ions and/or polyatomic ions to create compounds and write their chemical formulas.
- Be able to calculate the molecular mass of compounds.
- Be able to identify number of atoms of elements in chemical formulas.
- What are the diatomic elements? Why are they called "diatomic"?
- How do you write a chemical equation? Reactants vs. products.
- Be able to balance chemical equations using coefficients. How does this relate to the Law of Conservation of Matter?
- Know the differences between and be able to identify synthesis, decomposition, single-replacement, and double-replacement reactions.
- Understand and be able to apply the Rules of Ionization. Be able to identify an element's ionic charge and understand why that is.
- Ions vs. cations vs. anions.
- Be able to draw, interpret, and identify Lewis structures for elements.
- Be able to draw Lewis structures for ionic compounds and molecules.
- Ionic compounds vs. molecules vs. metals.
- Be able to identify polyatomic ions within a chemical formula. Be able to write chemical formulas using polyatomic ions.
- Be able to write the name of a polyatomic ion when given the chemical formula. Be able to write the chemical formula and charge of a polyatomic ion when given the name.