

Atomic Structure and Properties
1.8 Valence Electrons and Ionic Bonding
Worksheet

- 1) Write ionic formulas for the following compounds:
 - a. Sodium Acetate
 - b. Tin (II) Chloride
 - c. Calcium Hydroxide
 - d. Zinc Sulfate
 - e. Ammonium Sulfate
 - f. Manganese (II) Chloride
 - g. Copper (I) Nitrate
 - h. Silver Chloride
 - i. Nickel (II) Bromide
 - j. Lead (II) Nitrate
 - k. Sodium Iodide
 - l. Lithium Fluoride
 - m. Potassium Sulfide
 - o. Aluminum Oxide
- 2) Do metals gain or lose electrons in order to acquire a full octet?
- 3) Do non-metals gain or lose electrons in order to acquire a full octet?
- 4) What charge do Group 2A elements acquire as ions?
- 5) What charge do Group 7A elements acquire as ions?
- 6) What charge do Group 1A elements acquire as ions?
- 7) What charge do Group 6A elements acquire as ions?
- 8) What charge do Group 3A elements acquire as ions?
- 9) What charge do Group 4A elements acquire as ions?
- 10) What possible charge(s) can lead acquire as an ion?
- 11) What possible charge(s) can iron acquire as an ion?
- 12) Is energy released or absorbed when neutral sodium atoms react with chlorine gas to form solid sodium chloride, NaCl?
- 13) The following questions pertain to ionic compounds of Mg^{2+} .
 - a. Write the ionic formula for every compound that can be formed between magnesium and an element from Group 7A.
 - b. Provide an explanation for the ratio of bonding for the compounds of Mg^{2+} in part (a).
 - c. Will the ratio of cation to anion be the same or different for when other Group 2A cations form ionic compounds with the anions of Group 7A? Justify your answer.