Name Date Period

Ions and Ionic Compounds

Model 1: Common charges (by group) on elements when in ionic compounds.

Group #

1	2										13	3 1	4 1:	5 1	6 1	7 1	18
+1 -	+2		varies +3 -3 -2 -1 0							0							
Н																	H
																	e
Li	Be											В	С	N	O	F	Ne
Na	Mg											Al	Si	Р	S	CI	Ar
K	Ca	Sc	Ti	٧	Cr	Mn	Fe	Co	Ni	Cu	Zn	Ga	Ge	As	Se	Br	Kr
Rb	Sr	Y	Zr	Nb	Мо	Tc	Ru	Rh	Pd	Ag	Cd	In	Sn	Sb	Te	I	Xe
Cs	Ba		Hf	Ta	\mathbf{W}	Re	Os	Ir	Pt	Au	Hg	Tl	Pb	Bi	Ро	At	Rn

A <u>cation</u> has a positive charge. An <u>anion</u> has a negative charge.

- 1. In an ionic compound, what is the charge (sign and magnitude) on an ion from
 - a. group 1? _____

 - b. group 2? _____ c. group 13? _____
- 2. Do metal typically form **anions** or **cations** (circle one)?
- 3. In an ionic compound, what is the charge (sign and magnitude) on an ion from...
 - a. group 15? _____
 - b. group 16? _____
 - c. group 17?
- 4. Do nonmetals typically form **anions** or **cations** (circle one)?

Model 2: Formulas and names of some binary ionic compounds

Formula	Group # of Metal	Name
NaBr	1	Sodium bromide
K ₂ O	1	Potassium oxide
MgF_2	2	Magnesium fluoride
FeS	8	Iron(II) sulfide
Fe_2S_3	8	Iron(III) sulfide
Cu ₂ S	11	Copper(I) sulfide
AlP	13	Aluminium phosphide
PbI ₂	14	Lead (II) iodide

- 5. In the name of an ionic compound, which ion is always written first- the anion (negative) or the cation (positive). Circle one.
- 6. Circle the **names** of compounds in Model 2 for which the metal ion is not in groups 1,2,13. How does

the name of the cation differ form the name of the metal?

7. For metal ions the name of the mo		r 13 in ionic compound	ds, how does the name of the cation differ from
8. For nonmetals,	how does the nam	ne of the anion differ fr	rom the name of the element?
a. What isb. What is	the charge on the the charge on the	C	nd?
10. What is the ov	erall charge on the	e compound sodium bro	omide (NaBr) ?
11. In general, wha	at is the overall ch	arge on an ionic comp	ound?
12. What is the cha	arge on iron in Fes	S? In Fe ₂ S	S_3 ?
13. Based on your	answer to 12, wha	at do the Roman numer	rals in Model 2 represent?
Nonmetals: change	s: name the metal in group 1,2,or13, (e.g., Fe e ending of elemen	(example: $Ba^{2+} = \underline{\hspace{1cm}}$ add a Roman numeral	in parentheses that represents e.g., $O^{2-} =$ (example: FeN=
Complete the follo		Te .	T.v.
Cation (pos. ion)	Anion (neg. ion)	Formula	Name
		NaCl	15.
Ba ²⁺	O^{2-}		16.
			17. Calcium sulfide
Al ³⁺	Br ¹⁻		18.
		KC	10

			17. Calcium sulfide
Al ³⁺	Br ¹⁻		18.
		K ₂ S	19.
			20. Magnesium oxide
Sr ²⁺	N ³⁻		21.
Fe ²⁺	I ¹⁻		22.
	1	<u> </u>	-

Fe ³⁺	Br ¹⁻	23.
Cu ¹⁺	O ²⁻	24.
Cu ²⁺	O ²⁻	25.